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TM 11-212-10

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

C1
C2
C3
C4
C5
C6
C7
C8

RADIO SET AN/TRC-47 OPERATORS MANUAL

for Parts.
TM 11-5820 - 361-208.

current Changes. C2, C3, C5 and C7-C8 -

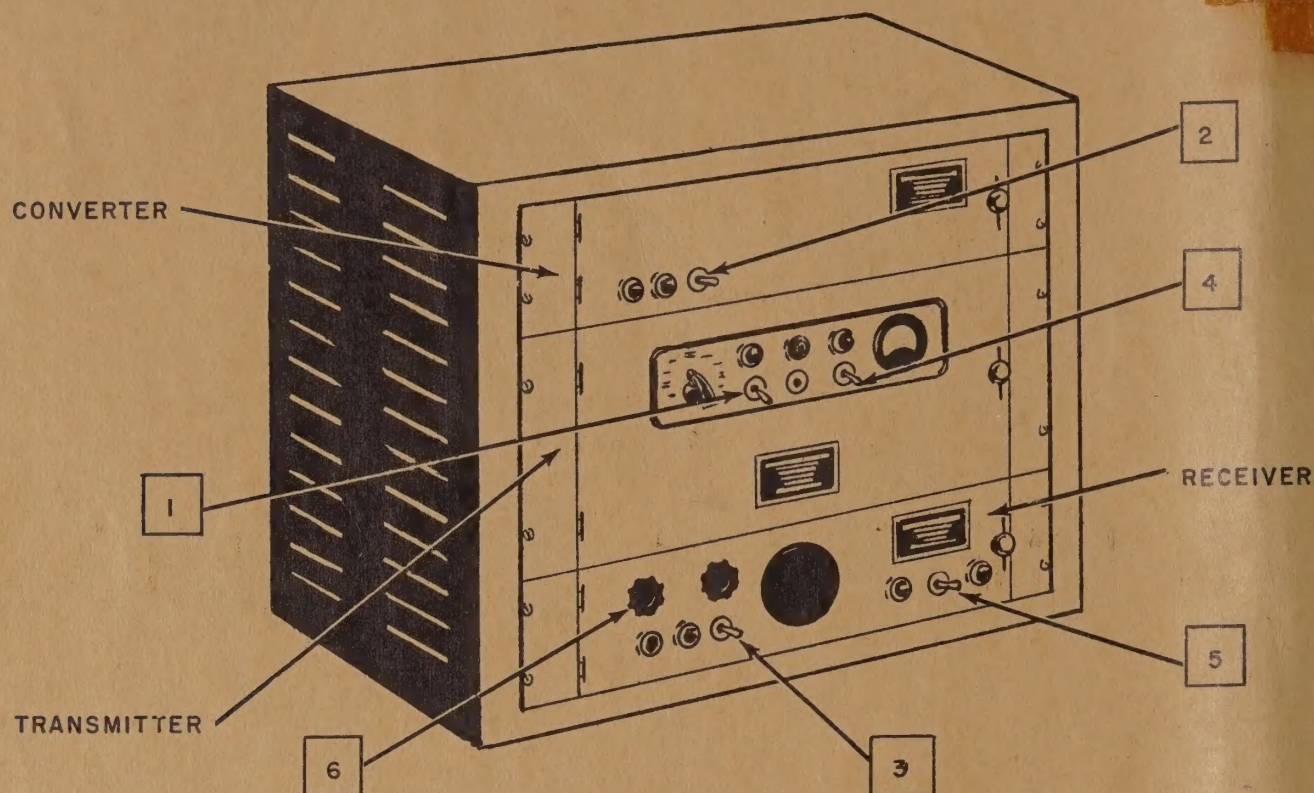
C7 & C8 posted 23 Aug 15



HEADQUARTERS, DEPARTMENT OF THE ARMY

APRIL 1958

CONDENSED OPERATING INSTRUCTIONS FOR RADIO SET AN / TRC-47



TO OPERATE SET

a. The numbers of the steps (1 through 6) below correspond to the numbers of the controls on the diagram.

- (1) Throw the transmitter FIL ON-OFF switch to ON.
- (2) Throw the converter ON-OFF switch to ON.
- (3) Throw the receiver ON-OFF switch to ON.
- (4) Wait 5 minutes and throw the PLATE ON-OFF switch to ON.
- (5) Throw the SQUELCH-OPEN switch to the SQUELCH position.
- (6) Turn the SENSITIVITY control completely clockwise. With no signal being received, turn SENSITIVITY control counterclockwise to the point where noise from the loudspeaker qui

TO TURN SET OFF

b. To turn the set off place all ON-OFF switches in the OFF position.

Operator's Manual
RADIO SET AN/TRC-47

POSTED 23 Aug 68

CHANGE }

No. 8 }

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 25 November 1964

TM 11-212-10, 28 April 1958, is changed as follows:

Note. The parenthetical reference to a previous change (example: page 1 of C 7) indicates that pertinent material was published in that change.

Insert the following caution in the places listed below:

Caution: Operators must be alert for unusual sights, sounds, and smells that indicate equipment malfunction. Turn power off to equipment that indicates malfunction and notify higher category of maintenance repair personnel.

Page 21, section II, beneath the section heading.

Page 23, paragraph 28 (page 2 of C 7), below the paragraph heading.

Page 2, paragraph 2 (page 1 of C 7). Delete subparagraph *c* and substitute:

c. Reporting of Equipment Manual Improvements. The direct reporting, by the individual user, of errors, omissions, and recommendations for improving this manual is authorized and encouraged. DA Form 2028 (Recommended Changes to DA Publications) will

be used for reporting these improvements. This form will be completed in triplicate using pencil, pen, or typewriter. The original and one copy will be forwarded direct to Commanding General, U.S. Army Electronics Command, ATTN: AMSEL-MR-MOC, Fort Monmouth, N.J. 07703. One information copy will be furnished to the individual's immediate supervisor (officer, noncommissioned officer, supervisor, etc.).

Page 21, paragraph 24 (page 1 of C 2). Make the following changes:

Subparagraph *b*. Delete the warning after subparagraph *b*.

Subparagraph *c*. Add subparagraph *c*(3) after subparagraph *c*(2):

- (3) To prevent unauthorized manipulation of the SENSITIVITY control, after initial adjustments are completed, secure the control knob setting with tape. A warning should be printed on the tape to forbid unauthorized personnel from resetting the control.

By Order of the Secretary of the Army:

HAROLD K. JOHNSON,
General, United States Army,
Chief of Staff.

Official:

J. C. LAMBERT,
Major General, United States Army,
The Adjutant General.

Distribution:

To be distributed in accordance with DA Form 12-32, Section II (Unclass) requirements for Nike-Ajax, Nike-Hercules and Pershing—TM—Radio.

☆ U. S. GOVERNMENT PRINTING OFFICE:

1964—750578

TECHNICAL MANUAL

RADIO SET AN/TRC-47, OPERATOR'S MANUAL

TM 11-212-10

CHANGES NO. 7

HEADQUARTERS,
DEPARTMENT OF THE ARMY
WASHINGTON 25, D.C., 16 September 1963

TM 11-212-10, 28 April 1958, is changed as follows:

Note. The parenthetical reference to previous Changes (example: "page 1 of C5") indicates that pertinent material was published in that Changes.

Page 2, paragraph 1. Make the following changes:

Subparagraph b. Change "The appendix" to: Appendix II.

Delete subparagraph d (superseded by C5, 28 Aug 1961).

Add paragraph 1.1 after paragraph 1.

1.1. Index of Publications

Refer to the latest issue of DA Pan 310-4 to determine whether there are new editions, changes, or additional publications pertaining to the equipment. DA Pam 310-4 is an index of current technical manuals, technical bulletins, supply bulletins, lubrication orders, and modification work orders available through publications supply channels. The index lists the individual parts (-10, -20, -35P, etc.) and the latest changes to and revisions of each equipment publication.

Delete paragraph 2 (page 1 of C5) and substitute:

2. Forms and Records

a. Reports of Maintenance and Unsatisfactory Equipment. Use equipment forms and records in accordance with instructions in TM 38-750.

b. Report of Damaged or Improper Shipment. Fill out and forward DD Form 6 (Report of Damaged or Improper Shipment) as prescribed in AR 700-58 (Army), NAVSANDA Publication 378 (Navy), and AFR 71-4 (Air Force).

c. Reporting of Equipment Manual Improvements. The direct reporting by the individual user of errors, omissions, and recommendations for improving this manual is manual is authorized and encouraged. DA Form 2028 (Recommended changes to DA technical manual parts lists or supply manual 7, 8 or 9) will be used for reporting these improvements. This form will be completed in triplicate. The original and one copy will be forwarded direct to: Commanding Officer, U.S. Army Electronics Material Support Agency, ATTN: SELMS-MP, Fort Monmouth, N.J., 07703. One information copy will be furnished to the individual's immediate supervisor (e.g., officer, noncommissioned officer, supervisor, etc.).

Page 10. Delete paragraph 16 and substitute:

* This change supersedes C 6, 11 January 1962.

16. Checking Unpacked Equipment

a. Inspect the equipment for damage incurred during shipment. If the equipment has been damaged, report the damage on DD Form 6 (Report of damaged or improper shipment) (para. 2).

b. See that the equipment is complete as listed on the packing slip. If the packing slip is not available, check the equipment against the basic issue items list (app II). Report discrepancies in accordance with TM 38-750. Shortage of a minor assembly or part that does not affect proper functioning of the equipment should not prevent use of the equipment.

c. If the equipment has been used or reconditioned, see whether it has been changed by a modification work order (MWO). If the equipment has been modified, the MOW number will appear on the front panel near the nomenclature plate. Check to see whether the MOW number (if any) and appropriate notations concerning the modifications have been entered in the equipment manual.

Note. Current MWO's applicable to the equipment are listed in DA Pam 310-4.

Page 23. Delete paragraphs 28 and 29 and substitute:

28. Preventive Maintenance

Preventive maintenance is the systematic care, servicing, and inspection of equipment to prevent the occurrence of trouble, to reduce downtime, and to assure that the equipment is serviceable.

a. Systematic Care. The procedures given in paragraphs 29 and 29.1 cover routine systematic care and cleaning essential to the proper upkeep and operation of the equipment.

b. Preventive Maintenance Checks and Services. The preventive maintenance checks and services charts (par. 29.1) outlines inspections to be made each day. These inspections are made to maintain Army electronic equipment in combat condition; that is, in good operating condition. To assist operators in maintaining combat serviceability, the chart indicates what to inspect, how to inspect, and what the normal conditions are; the References column lists the illustrations, paragraphs, or manuals that contain detailed repair or replacement procedures. If the defect cannot be remedied by the operator, higher echelon maintenance or repair is required. Records of these inspections must be made in accordance with TM 38-750.

29. Preventive Maintenance Checks and Services Periods

a. Preventive maintenance checks and services on the AN/TRC-47 are required daily.

b. Paragraph 29.1 specifies checks and services that must be accomplished daily or under special conditions listed below for transportable installations.

(1) When the equipment is initially installed.

(2) When the equipment is reinstalled after removal for any reason.

(3) At least once a month if the equipment is maintained in standby condition.

Add paragraphs 29.1 and 29.2 after paragraph 29.

29.1. Daily Preventive Maintenance Checks and Services Chart

Sequence No.	Item	Procedure	References
1	Exterior surfaces	Clean the cabinet exterior; clean the component panels and nameplates.	Par. 29.2.
2	Meter glass	Inspect meter glass for cracks	
3	Cords and cables	Inspect cords and cables for cracks and breaks.	Fig. 2.
4	Connectors	Inspect connectors for tightness.	
5	Nuts and screws	Check all nuts and screws for tightness.	
6	Knobs and switches ...	Inspect knobs and switches for binding and scraping.	
7	Operation	Check equipment for proper operation	Pars. 24 through 27.

29.2. Cleaning

Inspect the exterior of the cabinet. The exterior should be free of dust, dirt, grease, and fungus.

Warning: Cleaning Compound (Federal stock No. 7930-395-9542) is flammable and its fumes are toxic. Provide adequate ventilation. Do not use near a flame.

a. Remove dirt and dust with a clean, soft cloth. Dampen the cloth with cleaning compound if necessary.

b. Remove grease, fungus, and ground-in dirt from the cabinet; use a cloth dampened (not wet) with cleaning compound.

c. Remove dust and dirt from the meter glass with a cloth dampened with cleaning compound.

Caution: Do not press hard on the glass.

d. Remove dust and dirt from plugs and jacks with a brush.

e. Clean the panels and control knobs; use a soft, clean cloth. Dampen the cloth and use mild soap.

Page 24. Delete figure 14 (superseded by C5, 28 Aug. 61).

Page 25. Delete figure 15 (superseded by C5, 28 Aug. 61).

Page 26. Add APPENDIX I after paragraph 32.

APPENDIX I

REFERENCES

Following is a list of applicable references which are available to the operator of Radio Set AN/TRC-47:

DA Pam 310-4	Index of Technical Manuals, Technical Bulletins, Supply Bulletins, Lubrication Orders, and Modification Work Orders.
TM 38-750	The Army Equipment Record System and Procedures.

Page 27. Change "APPENDIX" to: APPENDIX II. Delete paragraph 4.

Pages 28 and 29 (as changed by C6, 11 January 1962). Add the following:

Page	Action	(2) Federal stock No.	(3) Designation by model		(4) Description	(5) Unit of issue	(6) Expendability	(7) Quantity authorized	(9) Illustration Item No.
			1	2					
28	Add items (page 1 of C2).	5820-504-7184			ITEMS COMPRISING AN OPERABLE EQUIPMENT				
					ANTENNA ELEMENT: Varo part No. 14257.	ea	X	1	
		5985-583-0367			ANTENNA ELEMENT TIP: Varo part No. 14255.	ea	X	1	
		5820-507-8181			COUNTER-POISE, ANTENNA: Varo part No. 14246.	ea	X	1	
		5310-543-5196			NUT, PLAIN, KNURLED: Varo part No. 14256.	ea	X	1	
		5820-507-3482			REFLECTOR SECTION ANTENNA: Varo part No. 14248; SigC dwg No. SC-B- 34582.	ea	X	16	
29	(as changed by C4, 6 April 1961).	5820-507-3487			SUPPORT ANTENNA: Varo part No. 14251.	ea	X	2	
		5820-503-2790			SUPPORT ANTENNA: Varo part No. 14248.	ea	X	1	
		5820-503-2791			SUPPORT ANTENNA: Varo part No. 14250.	ea	X	1	
		5920-280-4466 (5920-636-3047)			FUSE, CARTRIDGE: 2 amp, 250v, MIL F02G2R00A.				
		5060-166-7648 (5960-262-3763)			ELECTRON TUBE: MIL type OB2.				
30	Delete item (page 2 of C2).	5935-502-9369			SHIELD, ELECTRON TUBE SOCKET:				
		5920-295-9074 (5920-228-7882)			TRANSMITTER, RADIO T-593/TRC-47; T-593A/TRC-47 FUSE, CARTRIDGE: 2 amp, 125v max; Littelfuse part No. 313002.				

Page	Action	(2) Federal stock No.	(3) Designation by model		(4) Description	(5) Unit of issue	(6) Expendability	(7) Quantity authorized	(9) Illustration Item No.
			1	2					
30	Add item (page 3 of C2). Change columns 2 4 (page 3 of C2). (Page 3 of, C2), col. (4) (as deleted by C4, 6 April 1961).	5920-356-2193 5960-701-5609 (5960-646-4617)	(†)	(†)	FUSE, CARTRIDGE: 0.500 amp, 250v max; MIL type F02GR500A. SHIELD, ELECTRON TUBE: Black; International Electronic Corp No. TR6-6025. NO PARTS AUTHORIZED FOR STOCKAGE AT FIRST ECHELON	ea	X	1	F2
31	(as changed by C4, 6 April 1961). (as changed by C4, 6 April 1961).	5920-280-4466 (5920-636-3047) 5960-166-7648 (5960-262-3763)			FUSE, CARTRIDGE: 2 amp; 250v; MIL F02G2R00A ELECTRON TUBE: MIL type OB2. RUNNING SPARES AND ACCESSORY ITEMS TRANSMITTER, RADIO T-593/TRC-47; T-593A/TRC-47				
32	Add item (page 5 of C2). Change columns 2, 4 (page 5 of C2).	5920-356-2193 5920-295-9074 (5829-228-7882)	(†)	(†)	FUSE, CARTRIDGE: 0.500 amp, 250v mas; MIL type F02GR500A. FUSE, CARTRIDGE: 2 amp, 125v max; Littelfuse part No. 313002.	ea	X	5	

Note. Parenthesis indicate old stock number preceded by new.

By Order of the Secretary of the Army:

EARLE G. WHEELER,
*General, United States Army,
Chief of Staff.*

Official:

J.C. LAMBERT,
*Major General, United States Army,
The Adjutant General.*

Distribution:

To be distributed in accordance with DA Form 12-32, Section II (Unclass) requirements for Nike-Hercules, Pershing and Nike-Ajax - TM - Radio.

Posted 31 Aug 1961

15C

TM 11-212-10
C 5

TECHNICAL MANUAL

RADIO SET AN/TRC-47, OPERATOR'S MANUAL

TM 11-212-10 }
CHANGES No. 5 }

HEADQUARTERS,
DEPARTMENT OF THE ARMY
WASHINGTON 25, D.C., 28 August 1961

TM 11-212-10, 28 April 1958, is changed as follows:

Note. The parenthetical reference to previous Changes (example: "page 3 of C 3") indicates that pertinent material was published in that Changes.

Page 2, paragraph 1: Paragraph 1.1

d. (Superseded) Forward comments on this publication direct to Commanding Officer, U.S. Army Signal Materiel Support Agency, ATTN: SIGMS-PA2d, Fort Monmouth, N.J.

Paragraph 2a. Change "Commanding Officer, United States Signal Equipment Support Agency, Fort Monmouth, N.J." to: Commanding Officer, U.S. Army Signal Materiel Support Agency, ATTN: SIGMS-ML, Fort Monmouth, N.J.

Page 6, paragraph 7b. After the last sentence, add: A ventilating fan, mounted at the rear of the equipment cabinet, is provided to circulate air within the cabinet.

Page 13, Paragraph 20. After the last sentence, add: When replacing the rear panel, connect the power cord from the ventilating fan to receptacle J6 at the rear of the converter.

Page 17, figure 10, CONVERTER block. Add a cable to jack J6; label this cable: FROM VENTILATING FAN.

Page 20, paragraph 23. After the last sentence, add: The ventilating fan, mounted at the rear of the equipment cabinet, will operate to blow air out of the unit.

Page 23, paragraph 30c. Delete the chart and substitute:

METER SWITCH position	Typical meter indication
OSC IG.....	.35 to .5
OSC IK.....	.45 to .6
1 TRIP IG.....	.35 to .6
1 TRIP IK.....	.3 to .6
2 TRIP IG.....	.4 to .6
2 TRIP IK.....	.35 to .6
DRIVER IG.....	.3 to .6
DRIVER IK.....	.35 to .65
PA IG.....	.3 to .6
PA IP.....	.3 to .85
MOD IK.....	.5 to .8

ADDITIONAL ITEMS FOR 2D AND 3D ECHELON INSPECTIONS		CONDITION
25. INSPECT ANTENNA FOR ECCENTRICITIES, CORROSION, LOOSE FIT, DAMAGED INSULATORS AND REFLECTORS.		
27. CHECK FOR NORMAL OPERATION.		
28. BEFORE SHIPPING OR STORING, REMOVE BATTERIES		
IF DEFICIENCIES NOTED ARE NOT CORRECTED DURING THE INSPECTION, INDICATE ACTION TAKEN FOR CORRECTION.		

MAINTENANCE CHECK LIST FOR SIGNAL EQUIPMENT
SOUND EQUIPMENT, RADIO, DIRECTION FINDING
RADAR, CARRIER, RADIOSONDE AND TELEVISION
(AR 750-625)

EQUIPMENT NOMENCLATURE
RADIO SET AN/TRC-47

EQUIPMENT SERIAL NUMBER
543

INSTRUCTIONS

This form may be used for a period of one month by using the correct dates and weeks of the month. It is to be used as a Preventive Maintenance check list for Signal equipment in actual use, or for a check on equipment prior to issue.

- For detailed Preventive Maintenance instructions see:
 - The Technical Manual (in TM 11 series) for the equipment. (See DA Pamphlet Number 310-4)
 - The Supply Bulletin (SB 11-100 series) for the equipment. (See DA Pamphlet Number 310-4)
 - The Department of the Army Lubrication Order. (See DA Pamphlet Number 310-4)
- The following action will be taken by either the Communications Officer/Chief for 1st echelon, or the Inspector for higher echelon:
 - Enter Equipment Nomenclature and Serial Number.
 - Strike out items that do not apply to the equipment.
- Operator/Inspector will enter in the columns entitled **CONDITION**, on the proper line, a notation regarding the condition, using symbols specified under **LEGEND**.
- After operator completes each daily inspection he will initial over the appropriate dates under "Daily Condition for Month", then return form to his supervisor.

PREVENTIVE MAINTENANCE		
TYPE OF INSPECTION	DATE	SIGNATURE
OPER-2/3 ECHELON	15 MAY 1961	Richard Allen

DA FORM 11-238
1 MAY 57

REPLACES DA FORMS 11-238, 1 NOV 55; 11-239, 11-244, 11-245, 11-249, 11-249, 11-249, 11-280, AND 11-281 WHICH ARE OBSOLETE.

TM212-10-C5-1

Figure 14. (Superseded) DA Form 11-238, pages 1 and 4.

LEGEND for marking conditions: Satisfactory, ✓. Adjustment, Repair or Replacement required, X. Defect corrected, (X).		DAILY CONDITION FOR MONTH OF MAY 1961																																				
NO.	DAILY ITEM	CONDITION EACH WEEK					ADDITIONAL ITEMS FOR 2D AND 3D ECHELON INSPECTIONS																									CONDITION						
		1ST	2D	3D	4TH	5TH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		26	27	28	29	30	31
1.	COMPLETENESS AND GENERAL CONDITION OF EQUIPMENT. (Transmitters, receiver, carrying cases, wire, cables, microphones, tubes, spare parts, technical manuals).																																					
2.	CLEAN DIRT AND MOISTURE FROM ANTENNA. MICRO- PHONES, HEADSETS, KEYS, JACKS, PLUGS, COMPONENT PANELS.																																					
3.	INSPECT CONTROLS FOR NORMAL OPERATION. TAP CONTROLS LIGHTLY FOR EVIDENCE OF CUT-OUT FROM LOOSE CONTACTS.																																					
4.	CHECK FOR NORMAL OPERATION OF EQUIPMENT. BE ALERT FOR UNUSUAL OPERATION OR CONDITION.																																					
WEEKLY																																						
5.	CLEAN AND TIGHTEN EXTERIORS OF CASES RACKS, MOUNTS, TRANSMISSION LINES.																																					
6.	INSPECT CASES, MOUNTS, ANTENNA TOWERS AND EXPOSED METAL SURFACES FOR RUST, CORROSION.																																					
7.	INSPECT CORDS, CABLE, WIRE, SHOCK MOUNTS FOR CUTS, KINKS, BREAKS, FRAYING, UNDOE STRAIN.																																					
8.	CHECK ANTENNA GUY WIRES FOR PROPER TENSION OR DAMAGE.																																					
9.	INSPECT CABLES AND LEATHER ITEMS FOR WEAR, TEARS, FRAYING.																																					
10.	INSPECT ACCESSIBLE ITEMS FOR LOOSE: NUTS, SWITCHES, KNOBS, JACKS, CONNECTORS, RELAYS, TRANSFORMERS, MOTORS, PILOT LIGHTS, BLOWERS, ETC.																																					
11.	CLEAN AND/OR INSPECT AIR FILTERS, BRASS NAME PLATES, DIAL AND METER WINDOWS.																																					
12.	INSPECT STORAGE BATTERIES FOR DIRT, LOOSE TERMINALS, PROTRUDING OR CRACKED PARTS, DAMAGED CASES.																																					
ADDITIONAL ITEMS FOR 2D AND 3D ECHELON INSPECTIONS																																						
13.	INSPECT SHELTERS AND COVERS FOR ADEQUACY OF WEATHER-PROOFING, TEARS, FRAYING.																																					
14.	CHECK TERMINAL BOX COVERS FOR CRACKS, DIRT, LEAKS, DAMAGED GASKETS, GREASE.																																					

CONTINUED ON PAGE 4

Figure 15. (Superseded) DA Form 11-238, pages 2 and 3.

BY ORDER OF THE SECRETARY OF THE ARMY:

G. H. DECKER,
General, United States Army,
Chief of Staff.

Official:

R. V. LEE,
Major General, United States Army,
The Adjutant General.

Distribution:

Active Army:

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USATC Engr (2)	otherwise indicated):	44-535
USATC RA (2)	9-47	44-536
USATC Inf (2)	9-87	44-537
Svc Colleges (2)	9-227	44-544
Br Svc Sch (2)	9-377	44-545
GENDEP (2) except Atlanta	9-500 (AA-AC)	44-546
GENDEP (none)	9-510 (EA, EB)	44-547
Sig Sec, GENDEP (5)	11-5	44-548
Sig Dep (12)	11-7	

NG: State AG (3); units—same as Active Army except allowance is one copy to each unit.

USAR: None.

For explanation of abbreviations used, see AR 320-50.

Post Dec 64
NAG

TM 11-212-10
C 3

TECHNICAL MANUAL

RADIO SET AN/TRC-47, OPERATOR'S MANUAL

TM 11-212-10 }
CHANGES No. 3 }

HEADQUARTERS,
DEPARTMENT OF THE ARMY
WASHINGTON 25, D.C., 6 December 1960

TM 11-212-10, 28 April 1958, is changed to conform to a rework program involving all Radio Sets AN/TRC-47.

Delete "adjustable" in the following places:

Page 12, paragraph 19a(4), line 3.

paragraph 19b(2), lines 1 and 6.

Page 13, paragraph 19d(2), lines 1 and 4.

Page 11, paragraph 19. Make the following changes:

Line 15. Change "pole, mast, or tower leg not exceeding 14 inches in" to: pole or mast not exceeding 14 inches in.

Lines 21 through 26. Delete "If a tower leg (or any other structure) made of angle iron is used to support the antennas, a piece of wood or pipe should be placed in the angle at the points where the pole clamps are attached. This provides a larger gripping surface for the pole clamp chain."

Page 12, paragraph 19a. Make the following changes:

Add subparagraph (3.1) after (3).

(3.1) Mount one of the furnished pole brackets on each side of the pole (fig. 7). Use four lag screws and four lockwashers for each bracket. Mount the brackets so that the arms extend at right angles to the desired direction of communication.

Subparagraph (4), line 4. Change "44" to: 36. Add the following to the end of subparagraph

(4): Do not tighten the clamps all the way; save this operation until final adjustments are made (d3 below). Adjustments can be made only by moving the lower pole clamp assembly.

Page 12, paragraph 19b. Make the following changes:

Delete subparagraph (3) and substitute:

(3) Insert the threaded end of a reflector rod through a hole along the upper edge of the ground plane. Thread on a nut as far as it will go. Place a flat washer on the rod and insert the rod through the lower hole. Place a lockwasher and a nut over the bottom end of the rod and tighten the nut. Repeat this procedure for all reflector rods.

Page 13, paragraph 19d. Make the following changes:

Add subparagraph (2.1) after subparagraph (2).

(2.1) Assemble the turnbuckles between the lower edge of the ground plane and pole brackets as shown in figure 7. Draw the turnbuckles tight.

Subparagraph 19d(3). Delete all after sentence 2 and substitute: Move the lower pole clamp up or down until the ground plane is at the correct position, and tighten the clamp.

Page 28, appendix, section II (page 3 of C 2). Delete "No parts authorized for stockage at first echelon".

LEGEND for marking conditions: Satisfactory, ✓ Adjustment, Repair or Replacement required, X. Defect corrected, (X).		DAILY CONDITION FOR MONTH OF OCTOBER																														
NO.	DAILY ITEM	ADDITIONAL ITEMS FOR 2D AND 3D ECHELON INSPECTIONS																														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1. COMPLETENESS AND GENERAL CONDITION OF EQUIPMENT. (Transmitter, receiver, teletype radio , wire, cables, microphones, tubes, spare parts, technical manuals).		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2. CLEAN DIRT AND MOISTURE FROM ANTENNA-MICROPHONE-HEADSET-KEYS, JACKS, PLUGS, COMPONENT PANELS. PARA 29b		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3. INSPECT CONTROLS FOR NORMAL OPERATION. TAP CONTROLS LIGHTLY FOR EVIDENCE OF CUT-OUT FROM LOOSE CONTACTS.		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
4. CHECK FOR NORMAL OPERATION OF EQUIPMENT. BE ALERT FOR UNUSUAL OPERATION OR CONDITION. PARA 30		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
5. CLEAN AND TIGHTEN EXTERIORS OF CASES, RACKS, MOUNTS, TRANSMISSION LINES.																																
6. INSPECT CASES, MOUNTS, ANTENNA TOWERS AND EXPOSED METAL SURFACES FOR RUST, CORROSION.																																
7. INSPECT CORDS, CABLE, WIRE, SHOCK MOUNTS FOR CUTS, KINKS, BREAKS, FRAYING, UNDUE STRAIN.																																
8. CHECK ANTENNA GUY WIRES FOR PROPER TENSION OR DAMAGE.																																
9. INSPECT CANVAS AND LEATHER ITEMS FOR WILDER, TEARS, FRAYING.																																
10. INSPECT ACCESSIBLE ITEMS FOR LOOSENESS: SWITCHES, KNOBS, JACKS, CONNECTORS, RELAYS, TRANSFORMERS, MOTORS, PILOT LIGHTS, BLOWERS, ETC.																																
11. CLEAN AND/OR INSPECT AIR FILTERS, BRASS NAME PLATES, DIAL AND METER WINDOWS.																																
12. INSPECT STORAGE BATTERIES FOR DRY, LOOSE, TERMINALS, SPECIFIC GRAVITY, DAMAGED CASES. INSPECT DRY BATTERIES FOR LEAKAGE.																																
ADDITIONAL ITEMS FOR 2D AND 3D ECHELON INSPECTIONS		CONDITION																														
13. INSPECT SHELTERS AND COVERS FOR ADEQUACY OF WEATHER-PROOFING, TEARS, FRAYING.																																
14. CHECK TERMINAL BOX COVERS FOR CRACKS, SHIRT, LEAKS, DAMAGED CASES, GREASE.																																

2

3

CONTINUED ON PAGE 3

Figure 15. (Superseded) DA Form 11-238, pages 2 and 3.

By Order of *Wilber M. Brucker*, Secretary of the Army:

G. H. DECKER,
General, United States Army,
Chief of Staff.

Official:

R. V. LEE,
Major General, United States Army,
The Adjutant General.

Distribution:

Active Army:

To be distributed in accordance with DA Form 12-7 requirements for TM 11 Series (Unclass) plus the following:

USASA (2)	EUSA (2)	44-112 (2)	44-535 (2)
CNGB (1)	Units organized under following	44-435 (2)	44-537 (2)
Def Atomic Spt Agcy (5)	TOE's:	44-437 (2)	44-544 (2)
Tech Stf, DA (1)	11-7 (2)	11-500 (AA-	44-445 (2)
except CSigO (36)	11-16 (2)	AE) (2)	44-446 (2)
US ARADCOM (2)	11-57 (2)	11-557 (2)	44-447 (2)
US ARADCOM Rgn (2)	11-98 (2)	11-587 (2)	44-448 (2)
MDW (1)	11-117 (2)	11-592 (2)	44-548 (2)
Seventh US Army (2)	11-155 (2)	11-597 (2)	

NG: State AG (3); units—same as Active Army except allowance is one copy to each unit.

USAR: None.

For explanation of abbreviations used, see AR 320-50.

Posted 31 Dec 65 1 FC
5 left

TM 11-212-10
*C 2

TECHNICAL MANUAL
RADIO SET AN/TRC-47, OPERATOR'S MANUAL

TM 11-212-10,
Changes No. 2

HEADQUARTERS,
DEPARTMENT OF THE ARMY
WASHINGTON 25, D.C., 2 May 1960

TM 11-212-10, 28 April 1958, is changed as follows:

Page 21, paragraph 24. Make the following changes:

Add the following warning after subparagraph b.: (As added by C 1, 25 Feb. 60).

~~WARNING: The SENSITIVITY control is set to the correct level by maintenance personnel during alinement. Do not readjust this control. Unauthorized readjustment may result in loss of communication.~~

See C 8 for new statement

Delete paragraph c and substitute: (Changed by C 1, 25 Feb. 60).

c. During no-signal conditions, squelch the receiver audio output by placing the SQUELCH-OPEN switch in the SQUELCH position. If squelch action is not desired, set the SQUELCH-OPEN switch to the OPEN position.

Page 27. Appendix, paragraph 1b. Insert the following after the heading.

(1) *Source, maintenance, and recoverability code.* Not used.

Renumber existing subparagraphs to become (2) through (8).

Page 28. Appendix, Section II. Superseded.

Section II. FUNCTIONAL PARTS LIST

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
SOURCE MAINTENANCE AND RECOVERABILITY CODE	FEDERAL STOCK NUMBER	DESIGNATION BY MODEL	DESCRIPTION	UNIT OF ISSUE	EXPENDABILITY	QUANTITY AUTHORIZED	ILLUSTRATIONS FIGURE NO	ITEM NO
			ITEMS COMPRISING AN OPERABLE EQUIPMENT					
			RADIO SET AN/TRC-47					
	5820-503-1093		RADIO SET AN/TRC-47	ea	NX			
	Ord thru AGC		TECHNICAL MANUAL TM11-5820-361-10P	ea	X	2		
	Ord thru AGC		TECHNICAL MANUAL TM11-212-10	ea	X	2		
	5820-503-3489		ANTENNA: AS-813/TRC-47	ea	NX	2	2	
	5820-646-4799		CABINET, ELECTRICAL EQUIPMENT: CY 2126/TRC-47	ea	NX	1	2	
	5995-542-6283		CABLE ASSEMBLY, POWER, ELECTRICAL: 3 ft lg o/a; Varo Mfg Co No. 15864	ea	X	2	2	W2
	5995-564-9690		CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL: CX-4065 25 in lg o/a	ea	X	1	2	
	5995-542-6008		CABLE ASSEMBLY, RF: CG-1222A U uses RG-8A/U cable, 50 ft lg o/a	ea	X	4	2	
	5995-521-0309		CABLE ASSEMBLY, RF: CG-55B/U uses cable RG-8A/U; 150 ft lg	ea	X	2	2	
	5805-563-1888		CONVERTER, TELEPHONE SIGNAL CV-542/TRC-47	ea	NX	1	2	
	5820-503-1395		RECEIVER, RADIO R-748/TRC-47, R-748A/TRC-47	ea	NX	1	2	
	5820-697-9797		TRANSMITTER, RADIO T-593/TRC-47, T-593A/TRC-47	ea	NX	1	2	
			CONVERTER, TELEPHONE SIGNAL CV-542/TRC-47					
			BARE UNIT: for Converter, Telephone Signal CV-542/TRC-47	ea	NX	1		
	5995-553-7596		CABLE ASSEMBLY, POWER ELECTRICAL: 6 ft lg; 2 cond No. 16AWG; Varo No. 15863	ea	X	1	2	
	5920-553-2583		CAP, ELECTRICAL, FUSEHOLDER: Bussman No. IKP-10R	ea	X	1	2	XF1B
	5960-237-6917		ELECTRON TUBE: MIL type JAN 5725 6AS6W	ea	X	1		V1
	5960-262-0167		ELECTRON TUBE: MIL type JAN 12AT7WA	ea	X	3		V2 V3 V5
	5960-188-3551		ELECTRON TUBE: MIL type JAN 6AK6	ea	X	1		V4
	5960-166-7648		ELECTRON TUBE: MIL type JAN OB2	ea	X	1		V6
	5960-188-3564		ELECTRON TUBE: MIL type JAN OA2	ea	X	2		V7 V8
	5960-188-0880		ELECTRON TUBE: MIL type JAN 6X1W	ea	X	3		V9 V10
			FUSE, CARTRIDGE: MIL-F 15160, type No. F02G1R00B	ea	X	1		V11
	5920-636-3047		LAMP, INCANDESCENT: Clear T-3-1/4; GE No. 47	ea	X	1		DS1
	6240-155-8706		LAMP, INCANDESCENT: Clear 1-3/4 in max, GE No. 6S6DC	ea	X	1		RT1
	6240-143-3063		SHIELD, ELECTRON TUBE: JAN type TS102U01	ea	X	1		EV1

(1) SOURCE MAINTENANCE AND RECOVERABILITY CODE	(2) FEDERAL STOCK NUMBER	(3) DESIGNATION BY MODEL	(4) DESCRIPTION	(5) UNIT OF ISSUE	(6) EXPENDABILITY	(7) QUANTITY AUTHORIZED	(8) ILLUSTRATIONS	
							FIGURE NO	ITEM NO
		1 2	AN/TRC-47 (continued)					
	5960-264-3004		SHIELD, ELECTRON TUBE: JAN type TS103U02	ea	X	3		EV2 EV3 EV5
	5960-272-9094		SHIELD, ELECTRON TUBE: JAN type TS102U02	ea	X	2		EV4 EV4 EV6 thru EV11
	5960-295-7652		SHIELD, ELECTRON TUBE: JAN type TS102U03	ea	X	6		
			RECEIVER, RADIO R-748/TRC-47; R-748A/TRC-47					
			NOTE: Model Column 1 refers to R-748/TRC-47; Column 2 refers to R-748A/TRC-47.					
		+	BARE UNIT: for Receiver Radio R-748/TRC-47; R-748A/TRC-47	ea	NX	1		
			NOTE: The Crystal Unit will be requisitioned in the quantities and frequencies as authorized by the Army Command or Theater of operations Commander.					
		+	CRYSTAL UNIT, QUARTZ CR-18/U	ea	NX	1		Y1
	5955-129-8799	+	CRYSTAL UNIT, QUARTZ: Crystal unit CR-18/U; 6425KC ±0.005%	ea	NX	1		Y2
	5960-262-1357	+	ELECTRON TUBE: MIL type 5654/6AK5W	ea	X	4		V1 thru V4
			ELECTRON TUBE: MIL type 12AT7WA	ea	X	1		V5
	5960-262-0167	+	ELECTRON TUBE: MIL type 5749/6BA6W	ea	X	2		V6 V7
	5960-264-2089	+	ELECTRON TUBE: MIL type 616W	ea	X	2		V8 V10
	5960-228-3764	+	ELECTRON TUBE: MIL type 6005/6AQ5W	ea	X	1		V9
	5960-669-6861	+	ELECTRON TUBE: MIL type 12AX7	ea	X	1		V11
	5960-166-7664	+	ELECTRON TUBE: MIL type 0B2WA	ea	X	2		V12 V13
	5960-262-3763	+	ELECTRON TUBE: MIL type JAN 6AX5GT	ea	X	1		V14
	5960-188-0943	+	FUSE, CARTRIDGE: MIL type F02C1R00B	ea	X	1		F1
	5920-636-3047	+	LAMP, INCANDESCENT: MIL type MS15571-2 type TB-14	ea	X	3		DS1 thru DS3
	6240-155-8706	+	LAMP, INCANDESCENT: Mazda No. 40	ea	X	3		DS1 thru DS3
	6240-019-3146	+	SHIELD, ELECTRON TUBE: JAN type TS102U01	ea	X	4		E3 thru E6
	5960-262-0015	+	SHIELD, ELECTRON TUBE: JAN type TS103U02	ea	X	2		E7 E13
	5960-264-3004	+	SHIELD, ELECTRON TUBE: JAN type TS102U02	ea	X	4		E8 thru E10 E15
	5960-272-9094	+	SHIELD, ELECTRON TUBE: JAN type TS102U03	ea	X	3		E11 E12 E14
	5960-295-7652	+	SHIELD, ELECTRON TUBE: E.F. Johnson No. 133-280	ea	X	1		E16
	5935-502-9369	+						

See Change 4 Page 7-45

(1) SOURCE MAINTENANCE AND RECOVERABILITY CODE	(2) FEDERAL STOCK NUMBER	(3) DESIGNATION BY MODEL	(4) DESCRIPTION	(5) UNIT OF ISSUE	(6) EXPENDABILITY	(7) QUANTITY AUTHORIZED	(8) ILLUSTRATIONS	
							FIGURE NO	ITEM NO
		1 2	AN/TRC-47 (continued)					
			TRANSMITTER, RADIO T-593/TRC-47, T-593A/TRC-47					
			NOTE: Model Column 1 refers to T-593/TRC-47; Column 2 refers to T-593A/TRC-47.					
		+	BARE UNIT: for Transmitter, Radio T-593/TRC-47, T-593A/TRC-47	ea	NX	1		
			NOTE: The Crystal Unit will be requisitioned in the quantities and frequencies as authorized by the Army Commander or Theater of Operations Commander.					
		+	CRYSTAL UNIT, QUARTZ CR-18/U	ea	NX	1		
	5960-188-8569	+	ELECTRON TUBE: MIL JAN type 2E26	ea	X	1		V4
	5960-188-3915	+	ELECTRON TUBE: MIL type JAN 5763	ea	X	1		V3
	5960-262-1703	+	ELECTRON TUBE: MIL type JAN 5R4WCA	ea	X	1		V6
	5960-188-3551	+	ELECTRON TUBE: MIL type JAN 6AK6	ea	X	1		V2
	5960-262-0161	+	ELECTRON TUBE: MIL type JAN 6LAWCB	ea	X	2		V8 V9
	5960-166-7663	+	ELECTRON TUBE: MIL type JAN 12AU7	ea	X	2		V1 V5
	5960-188-7664	+	ELECTRON TUBE: MIL type JAN 12AX7	ea	X	1		V10
	5960-503-4880	+	ELECTRON TUBE: MIL type JAN OA2WA	ea	X	1		V7
	5920-228-7882	+	FUSE, CARTRIDGE: MIL-F 15160C; type F02D2R00B	ea	X	1		F1
	5920-510-7611	+	FUSE, CARTRIDGE: MIL-F-15160; type F02D2R00B	ea	X	1		F1
	6240-155-8706	+	LAMP, INCANDESCENT: Clear; Mazda No. 47	ea	X	2		DS1 DS2
	5960-264-3004	+	SHIELD, ELECTRON TUBE: JAN type TS103U02	ea	X	3		E4 E7 E9
	5960-272-9094	+	SHIELD, ELECTRON TUBE: JAN type TS102U02	ea	X	1		E5
	5960-284-4532	+	SHIELD, ELECTRON TUBE: type No. TS103U03	ea	X	1		E6
	5960-646-4617	+	SHIELD, ELECTRON TUBE: w/Black Oxide type No. TS103U03	ea	X	1		E6
	5960-295-7652	+	SHIELD, ELECTRON TUBE: JAN type TS102U03	ea	X	1		E8
			RUNNING SPARES AND ACCESSORY ITEMS					
			RADIO SET AN/TRC-47					
			NO PARTS AUTHORIZED FOR STOWAGE AT FIRST CHIEF. <i>24</i>					
			CONVERTER, TELEPHONE SIGNAL CV-542/TRC-47					
	5960-237-6917	+	ELECTRON TUBE: MIL type JAN 5725/6AS6W	ea	X	1		
	5960-262-0167	+	ELECTRON TUBE: MIL type JAN 12AT7WA	ea	X	1		

(1) SOURCE MAINTENANCE AND RECOVERABILITY CODE	(2) FEDERAL STOCK NUMBER	(3) DESIGNATION BY MODEL	(4) DESCRIPTION	(5) UNIT OF ISSUE	(6) EXPENDABILITY	(7) QUANTITY AUTHORIZED	(8) ILLUSTRATIONS	
							FIGURE NO.	ITEM NO.
		1 2	AN TRC 17 (continued)					
	5960-188-3551		ELECTRON TUBE: MIL type JAN 6AK6	ea	X	1		
	5960-166-7618		ELECTRON TUBE: MIL type JAN OB2	ea	X	1		
	5960-188-3564		ELECTRON TUBE: MIL type JAN OA2	ea	X	1		
	5960-188-0880		ELECTRON TUBE: MIL type JAN 6X4W	ea	X	1		
	5920-686-3017		FUSE, CARTRIDGE: MIL-F-15160, type No. F02G1R00B	ea	X	5		
	6240-155-8706		LAMP, INCANDESCENT: Clear T-3 1/4; GE No. 47	ea	X	1		
	6240-143-3063		LAMP, INCANDESCENT: Clear 1-3/4 in max, GE No. 6S6DC	ea	X	1		
			RECEIVER, RADIO R-718/TRC 17; R-718A TRC-17					
	5960-262-1357	+	ELECTRON TUBE: MIL type 5651 6AK5W	ea	X	2		
	5960-262-0167	+	ELECTRON TUBE: MIL type 12ATTWA	ea	X	1		
	5960-264-2089	+	ELECTRON TUBE: MIL type 5749/6BA6W	ea	X	1		
	5960-228-3764	+	ELECTRON TUBE: MIL type 6J6W	ea	X	1		
	5960-669-6861	+	ELECTRON TUBE: MIL type 6003 6AQ5W	ea	X	1		
	5960-166-7664	+	ELECTRON TUBE: MIL type 12AX7	ea	X	1		
	5960-262-3763	+	ELECTRON TUBE: MIL type OB2WA	ea	X	1		
	5960-188-0943	+	ELECTRON TUBE: MIL type JAN 6AX5GT	ea	X	1		
	5920-686-3047	+	FUSE, CARTRIDGE: MIL type F02G1R00B	ec	X	5		
	5920-280-4466		M1B-21					

(1) SOURCE MAINTENANCE AND RECOVERABILITY CODE	(2) FEDERAL STOCK NUMBER	(3) DESIGNATION BY MODEL	(4) DESCRIPTION	(5) UNIT OF ISSUE	(6) EXPENDABILITY	(7) QUANTITY AUTHORIZED	(8) ILLUSTRATIONS	
							FIGURE NO.	ITEM NO.
		1 2	AN/TRC-47 (continued)					
	6240-155-8706	+	LAMP, INCANDESCENT: MIL type MS15571-2, type TB-14	ea	X	2		
	6240-019-3146	+	LAMP, INCANDESCENT: Mazda No. 40	ea	X	2		
			TRANSMITTER, RADIO T-593/TRC-47, T-593A/TRC-47					
	5960-188-8569	+	ELECTRON TUBE: MIL JAN type 2E26	ea	X	1		
	5960-188-3915	+	ELECTRON TUBE: MIL type JAN 5763	ea	X	1		
	5960-262-1703	+	ELECTRON TUBE: MIL type JAN 5R4WCA	ea	X	1		
	5960-188-3551	+	ELECTRON TUBE: MIL type JAN 6AK6	ea	X	1		
	5960-262-0161	+	ELECTRON TUBE: MIL type JAN 616WGB	ea	X	1		
	5960-166-7663	+	ELECTRON TUBE: MIL type JAN 12AU7	ea	X	1		
	5960-188-7664	+	ELECTRON TUBE: MIL type JAN 12AX7	ea	X	1		
	5960-503-4880	+	ELECTRON TUBE: MIL type JAN 0A2WA	ea	X	1		
	5929-228-7882	+	FUSE, CARTRIDGE: MIL-F-15160C; type F02D2R00B	ea	X	5		
	5920-510-7611	+	FUSE, CARTRIDGE: MIL-F 15160; type F02D2R00B	ea	X	5		
	6240-155-8706	+	LAMP, INCANDESCENT: Clear; Mazda No. 47	ea	X	1		
	5920-356-2193	+	FUSE					

By Order of Wilber M. Brucker, Secretary of the Army:

L. L. LEMNITZER,
General, United States Army,
Chief of Staff.

Official:

R. V. LEE,
Major General United States Army,
The Adjutant General.

Distribution:

Active Army:

USASA (2)
Def Atomic Spt Agcy (5)
CNGB (1)
Technical Stf, DA (1) except
CSigO (18)
USARADCOM (2)
USCONARC (5)
MDW (1)
Armies (5) except
First US Army (7)
USARADCOM Rgn (2)
OS Maj Comd (5)
Base Comd (5)
Log Comd (5)
Corps (2)
USA Corps (Res) (1)
Trans Terminal Comd (1)
WRAMC (1)
AFIP (1)
AMS (1)
Army Terminals (1)
Gen Depots (2) except
Atlanta GENDEP (none)
OS Sup Agcy (1)
Ports of Emb (OS) (2)
Tech Staf Bd (1)
USA Arty Bd (1)
USA Armor Bd (1)
USA Inf Bd (1)
USA Air Def Bd (1)
USA Abn & Elct Bd (1)
USA Avn Bd (1)
USAATB (1)
Ft Belvoir (5)
Svc Colleges (5)
Br Svc Sch (2) except
USASCS (25)
USATC (2)
Sig Sec, Gen Depot (10)
Sig Depots (17)
Army Pictorial Cen (2)
Engr Maint Cen (1)

USA Ord Msl Comd (3)
USASSA (15)
USASSAMRO (1)
USA Sig Pub Agcy (8)
USA Sig Engr Agcy (1)
USA Comm Agcy (3)
USA Sig Equip Spt Agcy (2)
USA Sig Msl Spt Agcy (13)
Yuma Test Sta (2)
Sig Fld Maint Shops (3)
Sig Lab (5)
USA Elct PG (1)
Div (2)
JBUSMC (2)

Units org under fol TOE:

11-7 (2)
11-16 (2)
11-57 (2)
11-98 (2)
11-117 (2)
11-155 (2)
11-500 (AA-AE) (2)
11-557 (2)
11-587 (2)
11-592 (2)
11-597 (2)
44-112 (2)
44-435 (2)
44-437 (2)
44-445 (2)
44-446 (2)
44-447 (2)
44-448 (2)
44-535 (2)
44-537 (2)
44-544 (2)
44-545 (2)
44-546 (2)
44-547 (2)
44-548 (2)
44-549 (2)

NG: State AG (3); units—same as Active Army except allowance is one copy to each unit.

USAR: None.

For explanation of abbreviations used, see AR 320-50.

WARNING

Be careful not to contact high voltage connections or 115-volt input connections.

TECHNICAL MANUAL

No. 11-212-10

HEADQUARTERS,
DEPARTMENT OF THE ARMY
WASHINGTON 25, D. C., 28 April 1958RADIO SET AN/TRC-47
OPERATORS MANUAL

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27

* This manual supersedes so much of C1, 8 May 1956; C2, 2 July 1956; C3, 7 December 1956; and C4, 9 May 1957 to TM 11-221, 2 March 1956, as pertains to operating instructions for Radio Set AN/TRC-47.

CHAPTER 1

INTRODUCTION

Section I. GENERAL

1. Scope

a. This manual covers the installation, operation, and operator's maintenance of Radio Set AN/TRC-47 (fig. 2).

b. The appendix II contains an operator maintenance repair parts and special tools list.

c. Official nomenclature followed by (*) is used to indicate all models of the equipment item covered in this manual. Thus, Radio Transmitter T-593(*)/TRC-47 represents Radio Transmitters T-593/TRC-47 and T-593A/TRC-47; Radio Receiver R-748(*)/TRC-47 represents Radio Receivers R-748/TRC-47 and R-748A/TRC-47.

d. ~~Forward comments on this publication direct to Commanding Officer, United States Army Signal Publications Agency, Fort Monmouth, N. J.~~

1.1 - INDEX OF PUBLICATIONS (ADDGO)
(SEE CH 7)

2. Forms and Records

(See C7 for change to complete para)
a. *Unsatisfactory Equipment Reports.* Fill out and forward DA Form 468 (Unsatisfactory Equipment Report) to Commanding Officer, United States Army Signal Equipment Support Agency, Fort Monmouth, N. J. as prescribed in AR 700-38.

b. *Damaged or Improper Shipment.* Fill out and forward DD Form 6 (Report of Damaged or Improper Shipment) as prescribed in AR 700-58 (Army); Navy Shipping Guide, Article 1850-4 (Navy); and AFR 71-4 (Air Force).

c. *Preventive Maintenance Form.* Prepare DA Form 11-238 (Maintenance Check List for Signal Equipment—Sound Equipment, Radio, Direction Finding, Radar, Carrier, Radiosonde, and Television) (figs. 14 and 15) in accordance with instructions on the form.

Section II. DESCRIPTION AND DATA

3. Purpose and Use

a. Radio Set AN/TRC-47 is primarily used as part of a 3-mile, single-channel, radio link in a two-wire telephone system. A converter is used to connect the four-wire audio system of the radio link to the two-wire telephone circuit. A single Radio Set AN/TRC-47 comprises only one terminal of a radio link. Two radio sets (one at each end of the link) are required to form a complete radio system. A radio link, using Radio Sets AN/TRC-47, is used as an emergency substitute in case the normal land wire system fails and interrupts normal telephone communications. The radio sets are connected so that they parallel (fig. 1) the telephone system. Being capable of continuous operation, they are then kept in a standby condition (with power applied) for immediate use in case of failure of the telephone wires or cables. If such failure occurs, the radio sets are placed in operation to maintain communications.

b. The radio set provides line-of-sight duplex voice communication. Although it may be used on any two pre-aligned frequencies (one for the transmitter and one for the receiver) in the frequency range of 132 to 150 megacycles (mc) the radio set is

shipped from the manufacturer already aligned to the proper operating frequency. Radio Set AN/TRC-47 is installed and operated in an electrical equipment cabinet provided with the set and is designed for operation with a minimum of operator attendance.

4. Technical Characteristics

a. *Radio Transmitter T-593(*)/TRC-47.*
Transmitter type.....Crystal-controlled, amplitude-modulated, very-high-frequency.
Input power requirements...115 or 230 volts, 50- to 400-cps ac, single-phase; 225 watts when transmitting, 115 watts on standby.
Power factor.....90%.
Signal input requirements...-20 db to +10 db from a 600-ohm balanced or unbalanced line.
Modulation capability.....100% at full rated output.
Audio response.....300 to 4,000 cps.
Frequency range.....132 to 150 mc.
Crystal type.....CR-18/U.
Crystal frequencies.....7.4 to 8.4 mc.
Frequency stability......005%.
Carrier power output.....7 watts, continuous duty.
Output impedance.....52 ohms, unbalanced.
Weight.....47 lb.

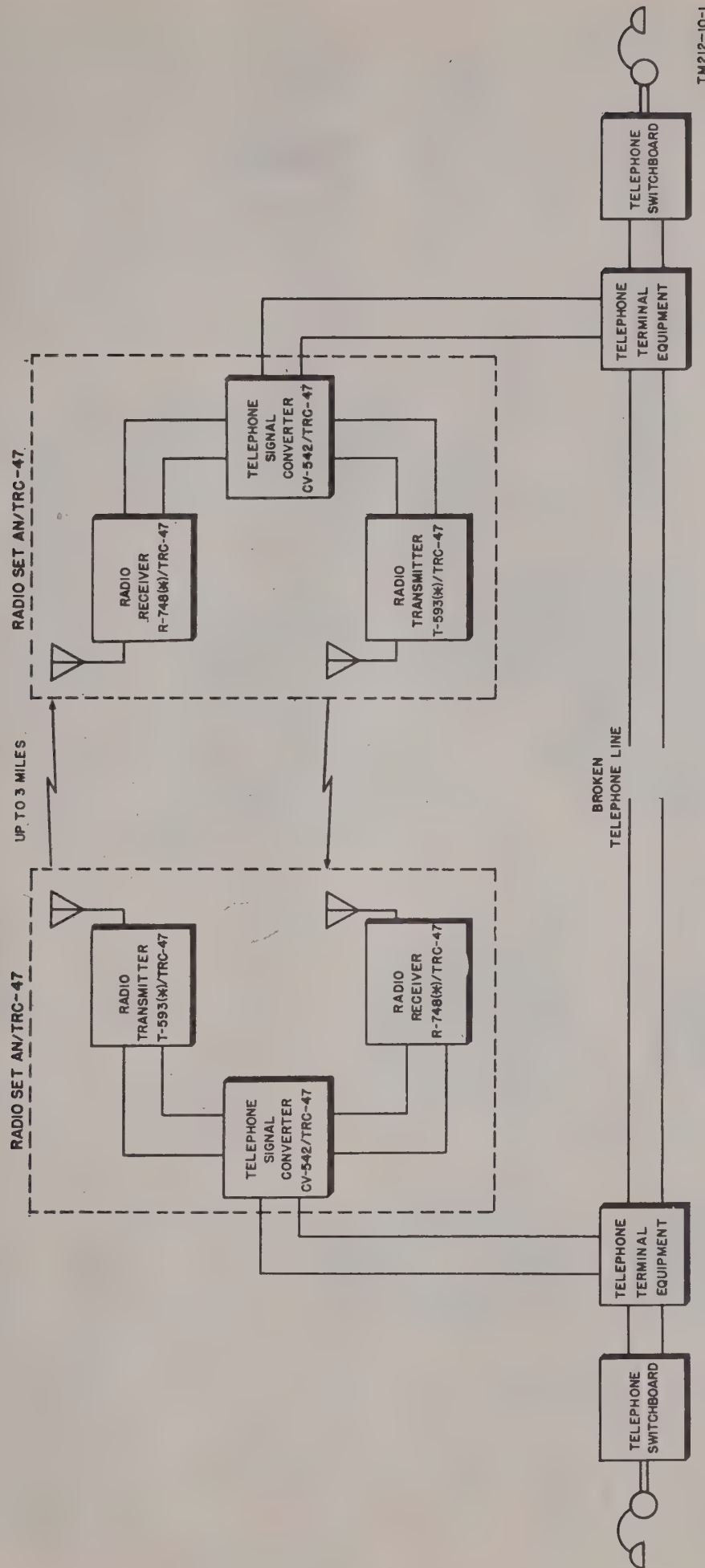


Figure 1. Radio set AN/TRC-47, system application.

CHAPTER 1

INTRODUCTION

Page 2 PAR 1:

Commanding Officer, U.S. Army Signal Materiel SN;
SIGMS-2A2d, Fort Monmouth, N.J.

a. This manual covers the installation, operation, and operator's maintenance of Radio Set AN/TRC-47 (fig. 2).

PAR 2 a

Commanding Officer, U.S. Army Signal Materiel Support Agency, ATTN: SIGMS-
ML, Fort Monmouth, N.J.

this manual. Thus, Radio Transmitter T-593(*)/TRC-47 represents Radio Transmitters T-593/TRC-47 and T-593A/TRC-47; Radio Receiver R-748(*)/TRC-47 represents Radio Receivers R-748/TRC-47 and R-748A/TRC-47.

d. ~~Forward comments on this publication direct to Commanding Officer, United States Army Signal Publications Agency, Fort Monmouth, N.J.~~

1.1 - INDEX OF PUBLICATIONS (ADDED)
(SEE CH 7)

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b. The radio set provides line-of-sight duplex voice communication. Although it may be used on any two pre-aligned frequencies (one for the transmitter and one for the receiver) in the frequency range of 132 to 150 megacycles (mc) the radio set is

(See C7 for change to complete para)
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Input power requirements...115 or 230 volts, 50- to 400-cps ac, single-phase; 225 watts when transmitting, 115 watts on standby.

Power factor.....90%.

Signal input requirements...—20 db to +10 db from a 600-ohm balanced or unbalanced line.

Modulation capability.....100% at full rated output.

Audio response.....300 to 4,000 cps.

Frequency range.....132 to 150 mc.

Crystal type.....CR-18/U.

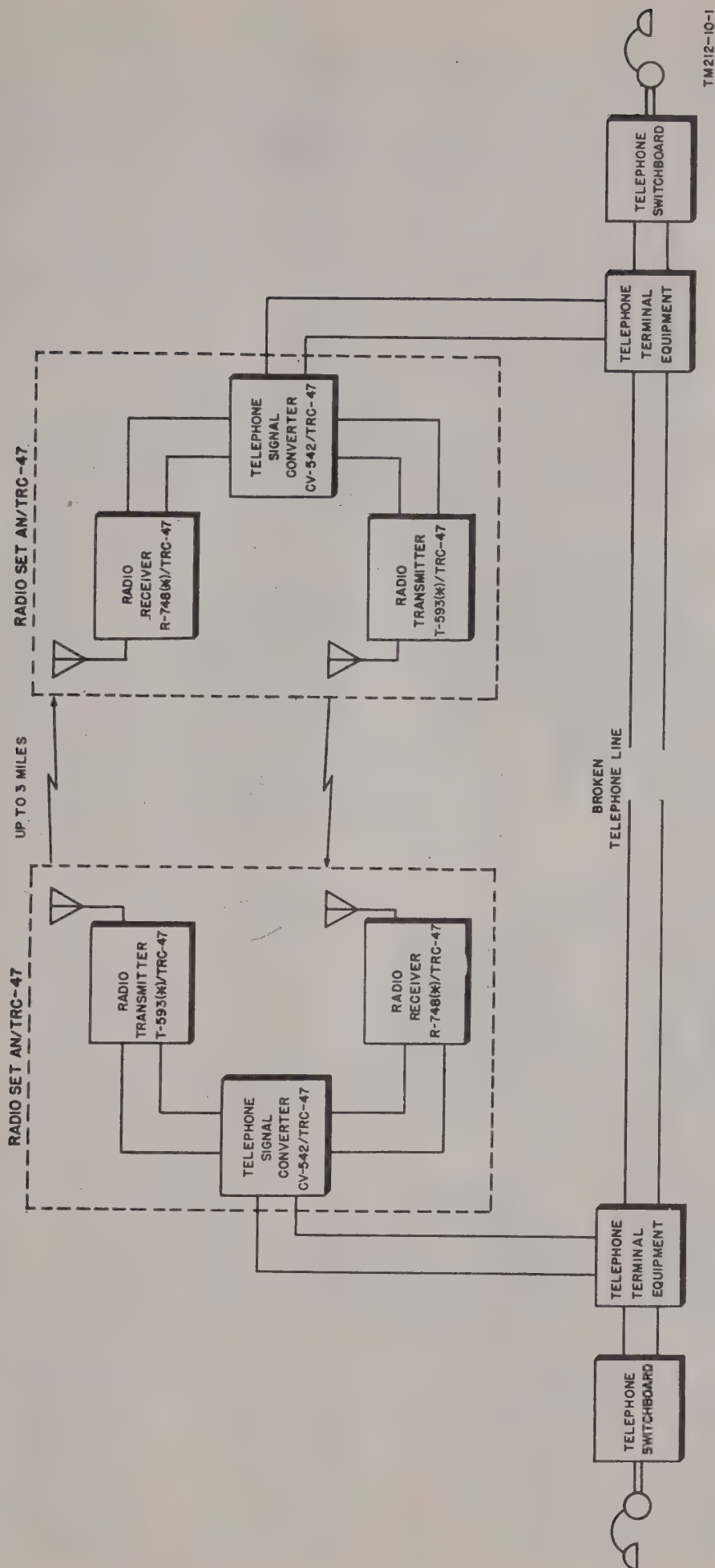
Crystal frequencies.....7.4 to 8.4 mc.

Frequency stability......005%.

Carrier power output.....7 watts, continuous duty.

Output impedance.....52 ohms, unbalanced.

Weight.....47 lb.



TM212-10-1

Figure 1. Radio set AN/TRC-47, system application.

b. Radio Receiver R-748(*)/TRC-47.

Receiver type.....Superheterodyne, dual-conversion.
 Type of modulation received..Amplitude.
 Sensitivity.....—100 dbm (2.28 μ v) signal modulated 30%, gives 1 watt output.
 Selectivity..... \pm 20 kc, 6 db down; \pm 100 kc, 60 db down.
 Signal-to-noise ratio.....10 db for —100 dbm (2.28 μ v) signal modulated 30%.
 Frequency range.....132 to 150 mc.
 Input impedance.....52 ohms, unbalanced.
 AGC action.....1 db maximum output variation between —95 dbm (4 μ v) and —20 dbm (22,000 μ v).
 Spurious response.....More than 80 db below those signals within the selectivity bandwidth.
 Audio response..... \pm 2 db with respect to 1,000 cps over range 200 to 3,000 cps. At least —20 db at 10,000 cps.
 Distortion.....Less than 8% from receiving 30% modulated signal of —50 dbm power, in audio output of 1 watt.
 Input power.....120 volt-amperes, 115 or 230 volts, 50 to 400 cycles, ac.
 Weight.....30 lb.

c. Telephone Signal Converter CV-542/TRC-47.

Hybrid output level to transmitter.....—33 \pm 2 dbm.
 Input impedance.....600 ohms.
 Output impedance.....600 ohms.
 Signaling frequency.....800 cps \pm .05%.
 Low-frequency signal input...20 cps.
 20-cps output level into 600 ohms.....25 volts.
 Signaling detector sensitivity—20 dbm to +10 dbm.
 Telephone line level.....—20 dbm to —16 dbm.
 Number of tubes.....11.
 Input power.....72 volt-amperes, 115 or 230 volts, 50 to 400 cps.
 Weight.....23 lb.

5. Components of Radio Set AN/TRC-47
 (fig. 2)

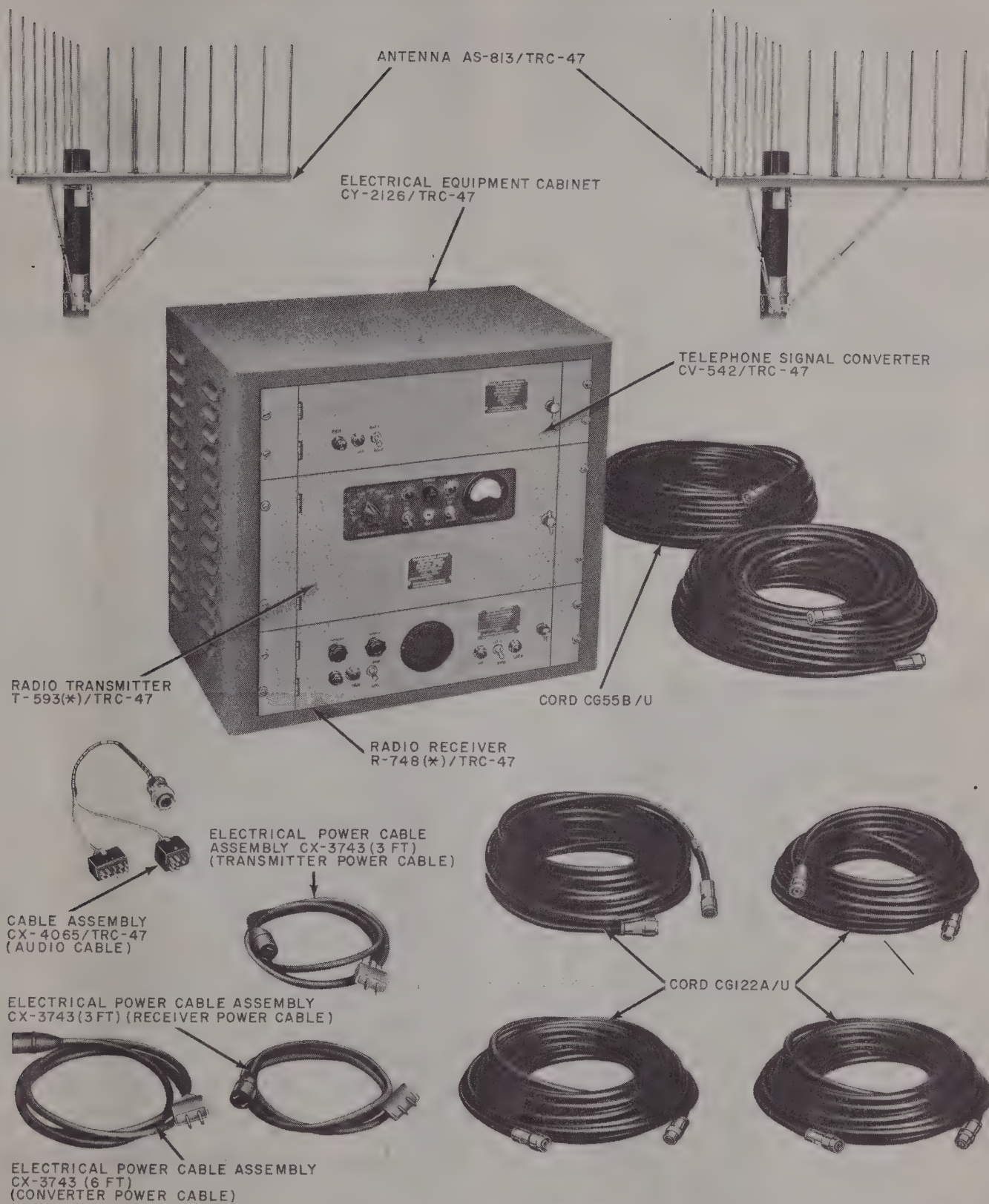
a. Components. The components of Radio Set AN/TRC-47 are listed in the following table:

Quantity	Item	Height (in.)	Depth (in.)	Length (in.)	Unit weight (lb)
1	Radio Set AN/TRC-47 including:				
1	Radio Transmitter T-593(*)/TRC-47.....	8 $\frac{3}{4}$	14 $\frac{1}{2}$	19	47
1	Radio Receiver R-748(*)/TRC-47.....	5 $\frac{1}{4}$	13 $\frac{1}{8}$	19	30
1	Telephone Signal Converter CV-542/TRC-47.....	5 $\frac{1}{4}$	13 $\frac{3}{4}$	19	23
2	Antenna AS-813/TRC-47.....				48
1	Electrical Equipment Cabinet CY-2126/TRC-47.....	21 $\frac{1}{4}$	14 $\frac{3}{4}$	22 $\frac{1}{2}$	27
4	Cord CG-122A/U.....			50 ft	5 $\frac{1}{4}$
2	Cord CG-55B/U.....			150 ft	16
1	Electrical Special Purpose Branched Cable Assembly CX-4065/TRC-47.....			25 $\frac{1}{4}$	
1	Electrical Power Cable Assembly CX-3743/U (6 ft).....			6 ft	
2	Electrical Power Cable Assembly CX-3743/U (3 ft).....			3 ft	
1 set	Running spares (b below).				

b. Running Spares. The following running spares are supplied with Radio Set AN/TRC-47:

Quantity	Item
2.....	Electron tubes, OB2
3.....	Electron tubes, 12AT7WA
1.....	Electron tube, 6005/6AQ5W
1.....	Electron tube, 6AX5
2.....	Electron tubes, 5654/6AK5W
1.....	Electron tube, 6J6
1.....	Electron tube, 12AU7
2.....	Electron tubes, 6AK6

Quantity	Item
1.....	Electron tube, 5763
1.....	Electron tube, 2E26
1.....	Electron tube, 5R4GY
2.....	Electron tubes, OA2
1.....	Electron tube, 6L6WGB
1.....	Electron tube, 5725/6AS6W
2.....	Electron tubes, 6X4W
12.....	Fuses, 1 amp, 250 v, Slo Blo
6.....	Fuses, 2 amp, 250 v, Slo Blo
3.....	Lamps LM-52
1.....	Lamp, 6 watts, 120 v



TM212-10-3

Figure 2. Radio set AN/TRC-47, less spare parts.

6. Nomenclature and Common Name

A list of the nomenclature assignments for the components of Radio Set AN/TRC-47 is given below. A common name is indicated after each item.

Nomenclature	Common name
Radio Set AN/TRC-47-----	Radio set.
Radio Transmitter T-593(*)/TRC-47.	Transmitter.
Radio Receiver R-748(*)/TRC-47--	Receiver.
Telephone Signal Converter CV-542/TRC-47.	Converter.
Antenna AS-813/TRC-47-----	Antenna.
Electrical Equipment Cabinet CY-2126/TRC-47.	Equipment cabinet.
Cord CG-122A/U (50 ft)-----	Extension antenna cable.
Cord CG-55B/U-----	Antenna cable.
Electrical Special Purpose Branched Cable Assembly CX-4065/TRC-47."	Audio cable.
Electrical Power Cable Assembly CX-3743/U (6 ft).	Converter power cable.
Electrical Power Cable Assembly CX-3743/U (3 ft).	Transmitter power cable or receiver power cable.

7. Description of Radio Set AN/TRC-47

(fig. 2)

a. Radio Set AN/TRC-47 operates in the frequency range of 132 to 150 mc. It is shipped from the manufacturer already alined to the proper operating frequency. The radio set contains no provisions for continuous tuning; therefore, any changes in operating frequencies requires the individual adjustment of various tuned circuits. Two corner-reflector-type antennas supplied with each radio set allow full duplex operation. All antenna and interconnecting cables required for operation are supplied with the radio set.

b. The radio set contains three separate chassis: a receiver, a transmitter, and a converter. Each of these components contains its own power supply and functions independently. The three units, which do not have individual dust covers or housings, are mounted one on top of the other in a dark gray, steel, equipment cabinet. Each component is mounted by means of two machine screws on each of the left and right edges of their front panels. When mounted, the front panels of the components form the front of the equipment cabinet. These front panels are hinged on the left and may be

opened as doors to reach the parts and connections behind each panel. The doors are spring-loaded so that they automatically close when opened less than halfway or fully open automatically when opened more than halfway. A removable panel forms the entire rear wall of the equipment cabinet so that all tubes and the rear of the components can be reached. The sides of the equipment cabinet contain louvers so that air may circulate freely around the components mounted within. The dimensions of the equipment cabinet (and therefore of the installed radio set) are 22½ inches wide, 21¼ inches high, and 14¾ inches deep. C-5

8. Description of Radio Transmitter T-593(*)/TRC-47

(fig. 3)

a. The transmitter, its modulator, and power supply, which contain a total of 10 electron tubes, are mounted on a common chassis. This chassis is vertically connected to a front panel by which the entire unit is rack-mounted in the equipment cabinet (par. 7). Therefore, all tubes and components lie in a horizontal plane. A subpanel that contains all operating controls and the tuning meter is mounted behind the front panel. This subpanel can be seen and reached through a rectangular cutout in the front panel door. The door may be opened to reach all tuning adjustment controls. The subpanel is not attached to the door, and when the door is opened the subpanel remains in its original position. The subpanel, however, is hinged at its left side, and when a machine screw is removed from the right edge of the subpanel it also may be opened like a door. This exposes the rear of the meter and the controls that are mounted on the panel. A microphone jack, included on the panel, is not used with Radio Set AN/TRC-47.

b. A perforated aluminum shield attached by two machine screws completely incloses the rear of the radio-frequency (rf) assembly. This shield may be removed for servicing. The entire rf assembly is mounted on a subchassis that may be removed as a unit, from the main chassis, for servicing.

9. Description of Radio Receiver R-748(*)/TRC-47

(fig. 4)

The receiver contains 14 electron tubes and is mounted on a single chassis which is vertically mounted to a front panel. All tubes and components lie in a horizontal plane when the receiver is mounted in the equipment cabinet. The entire

center portion of the front panel forms a door that may be opened to reach the tuning controls and the receiving tubes in the rear. All operating controls and a loudspeaker are mounted on the door and swing with the door when it is opened. The loudspeaker is mounted behind a circular cutout in the door and is protected by a perforated metal grill which covers the opening.

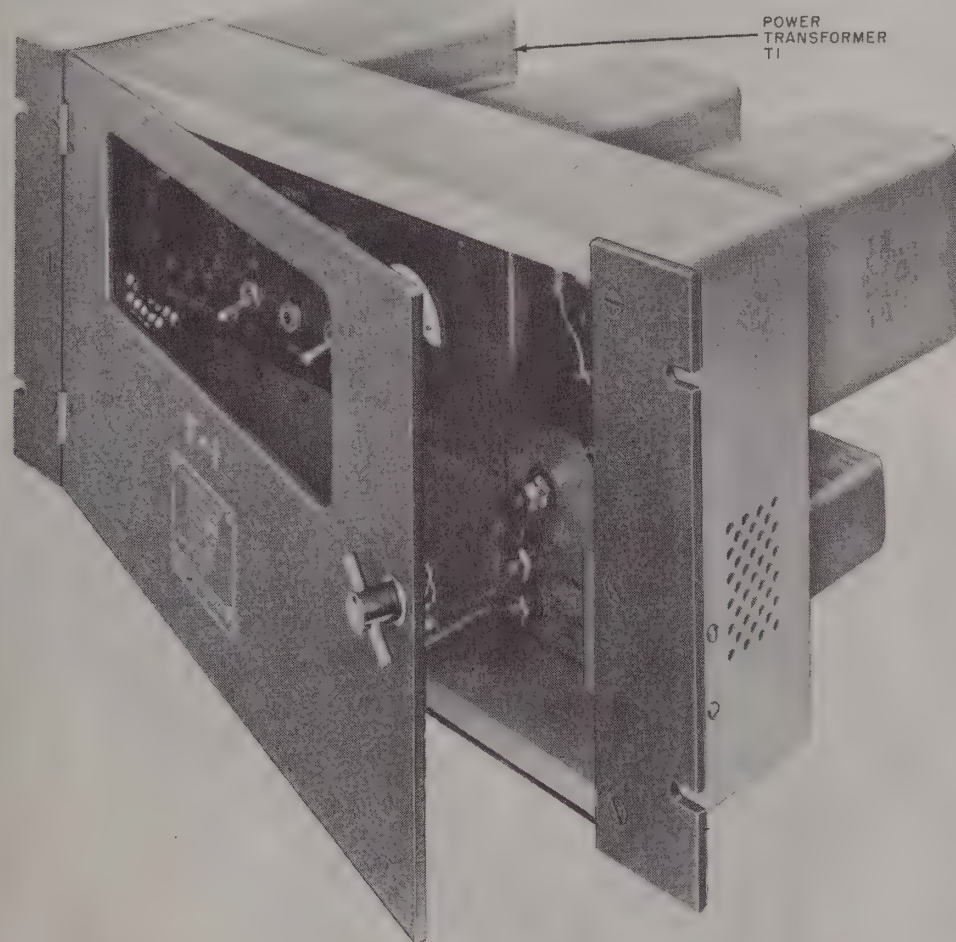
10. Description of Telephone Signal Converter CV-542/TRC-47

(fig. 5)

a. The converter is a combined ringing signal converter and electronic hybrid network. The ringing signal converter circuits convert a 20-cycle-per-second (cps) ringing signal from the local tele-

phone line to an 800-cps ringing signal capable of being transmitted by radio. They also convert any 800-cps ringing signal received from the receiver to a 20-cps ringing signal for the telephone lines. The hybrid network provides terminal facilities that interconnect the four-wire radio system (two wires for incoming audio and two wires for outgoing audio) with the two-wire telephone system (both incoming and outgoing audio carried by the same two wires).

b. The converter is mounted on a single chassis and is vertically connected to a front panel. The front panel contains a door upon which the operating controls are mounted and which opens so that the bottom of the converter chassis can be reached.



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Figure 3. Radio transmitter T-593(*)/TRC-47.

6. Nomenclature and Common Name

A list of the nomenclature assignments for the components of Radio Set AN/TRC-47 is given below. A common name is indicated after each item.

AS-813/TRC-47-----	Antenna.
Electrical Equipment Cabinet CY-2126/TRC-47.	Equipment cabinet.
Cord CG-122A/U (50 ft)-----	Extension antenna cable.
Cord CG-55B/U-----	Antenna cable.
Electrical Special Purpose Branched Cable Assembly CX-4065/TRC-47.	Audio cable.
Electrical Power Cable Assembly CX-3743/U (6 ft).	Converter power cable.
Electrical Power Cable Assembly CX-3743/U (3 ft).	Transmitter power cable or receiver power cable.

7. Description of Radio Set AN/TRC-47

(fig. 2)

a. Radio Set AN/TRC-47 operates in the frequency range of 132 to 150 mc. It is shipped from the manufacturer already alined to the proper operating frequency. The radio set contains no provisions for continuous tuning; therefore, any changes in operating frequencies requires the individual adjustment of various tuned circuits. Two corner-reflector-type antennas supplied with each radio set allow full duplex operation. All antenna and interconnecting cables required for operation are supplied with the radio set.

b. The radio set contains three separate chassis: a receiver, a transmitter, and a converter. Each of these components contains its own power supply and functions independently. The three units, which do not have individual dust covers or housings, are mounted one on top of the other in a dark gray, steel, equipment cabinet. Each component is mounted by means of two machine screws on each of the left and right edges of their front panels. When mounted, the front panels of the components form the front of the equipment cabinet. These front panels are hinged on the left and may be

opened as doors to reach the parts and connections behind each panel. The doors are spring-loaded so that they automatically close when opened less than halfway or fully open automatically when opened

C-5
A ventilating fan, mounted at the rear of the equipment cabinet, is provided with to circulate air within the cabinet.
72 inches wide, 21 1/4 inches high, and 14 3/4 inches deep. C-5

8. Description of Radio Transmitter T-593(*)/TRC-47

(fig. 3)

a. The transmitter, its modulator, and power supply, which contain a total of 10 electron tubes, are mounted on a common chassis. This chassis is vertically connected to a front panel by which the entire unit is rack-mounted in the equipment cabinet (par. 7). Therefore, all tubes and components lie in a horizontal plane. A subpanel that contains all operating controls and the tuning meter is mounted behind the front panel. This subpanel can be seen and reached through a rectangular cutout in the front panel door. The door may be opened to reach all tuning adjustment controls. The subpanel is not attached to the door, and when the door is opened the subpanel remains in its original position. The subpanel, however, is hinged at its left side, and when a machine screw is removed from the right edge of the subpanel it also may be opened like a door. This exposes the rear of the meter and the controls that are mounted on the panel. A microphone jack, included on the panel, is not used with Radio Set AN/TRC-47.

b. A perforated aluminum shield attached by two machine screws completely incloses the rear of the radio-frequency (rf) assembly. This shield may be removed for servicing. The entire rf assembly is mounted on a subchassis that may be removed as unit, from the main chassis, for servicing.

9. Description of Radio Receiver R-748(*)/TRC-47

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center portion of the front panel forms a door that may be opened to reach the tuning controls and the receiving tubes in the rear. All operating controls and a loudspeaker are mounted on the door and swing with the door when it is opened. The loudspeaker is mounted behind a circular cutout in the door and is protected by a perforated metal grill which covers the opening.

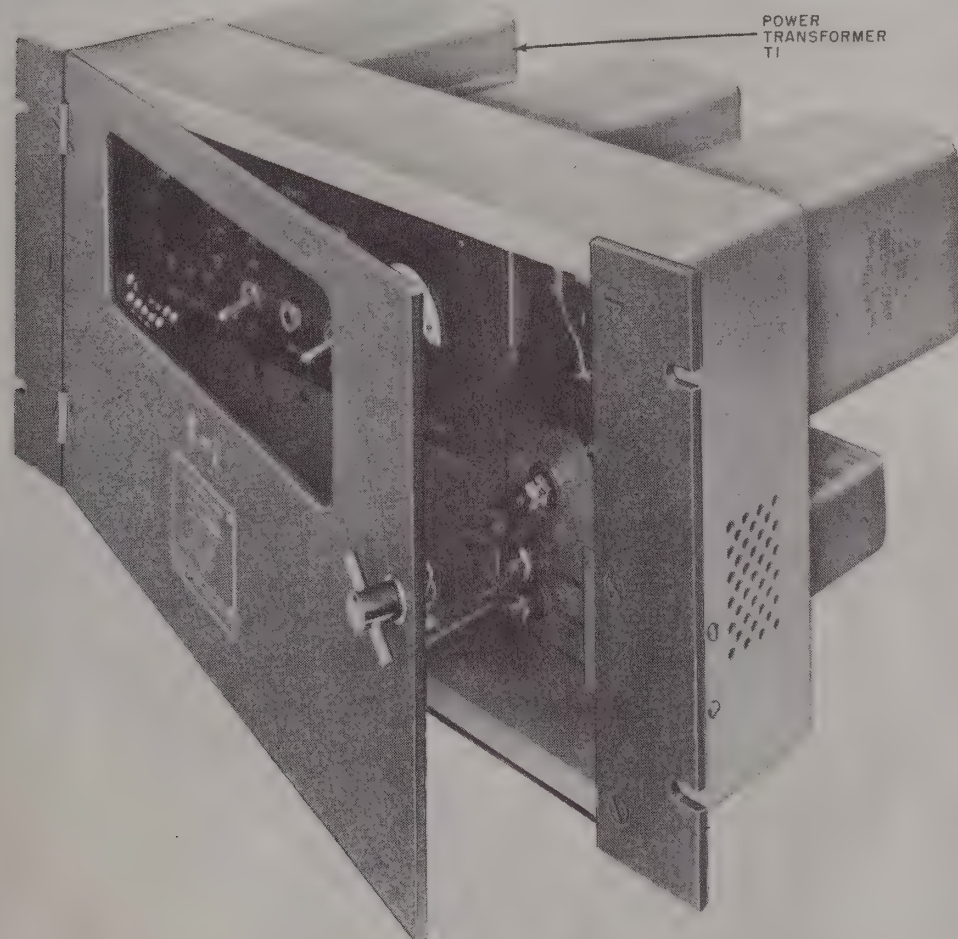
10. Description of Telephone Signal Converter CV-542/TRC-47

(fig. 5)

a. The converter is a combined ringing signal converter and electronic hybrid network. The ringing signal converter circuits convert a 20-cycle-per-second (cps) ringing signal from the local tele-

phone line to an 800-cps ringing signal capable of being transmitted by radio. They also convert any 800-cps ringing signal received from the receiver to a 20-cps ringing signal for the telephone lines. The hybrid network provides terminal facilities that interconnect the four-wire radio system (two wires for incoming audio and two wires for outgoing audio) with the two-wire telephone system (both incoming and outgoing audio carried by the same two wires).

b. The converter is mounted on a single chassis and is vertically connected to a front panel. The front panel contains a door upon which the operating controls are mounted and which opens so that the bottom of the converter chassis can be reached.



TM212-10-2

Figure 3. Radio transmitter T-593(*)/TRC-47.

11. Description of Antenna AS-813/TRC-47 (fig. 2)

Two corner-reflector, ground-plane type antennas of 50 ohms impedance are supplied with each radio set. These antennas operate in the frequency range of 132 to 150 mc and direct radiation along a narrow beam. A single driven element is vertically mounted in the center of a triangularly shaped base that serves as the counterpoise (ground-plane). The base is made of a perforated aluminum plate supported by an aluminum framework. The triangular base is 65 inches on two sides with the third side (or front) being approximately 89 inches long. The driven element is adjustable in length (from 17 to $21\frac{3}{4}$ inches) and position. The bottom of the element is fitted for connection to a coaxial line. The two sides of the corner reflector are formed of 16 vertically mounted $\frac{3}{8}$ -inch diameter rods, each of which is 42 inches long. The entire unit can be mounted on a pole or mast by two chain-type pole clamps and two supporting legs.

12. Description of Minor Components

The components supplied with the radio set in addition to the major components are the required connecting cables (fig. 2). Cords CG-55B/U and Cords CG-122A/U are used to connect the antennas with the radio set. Cords CG-55B/U (150 feet) are the primary antenna cables and Cords CG-122A/U

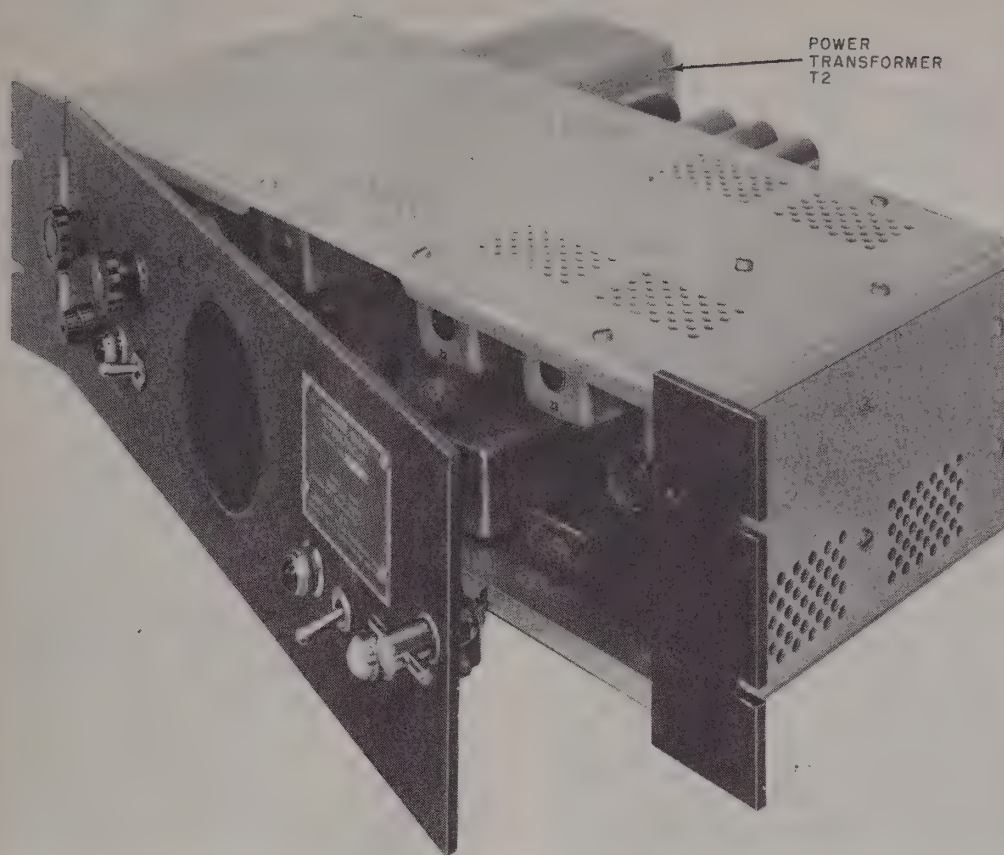
(50 feet) are used as extensions when the primary antenna cables are not long enough for the particular installation. Electrical Special Purpose Branched Cable Assembly CX-4065/TRC-47 is used to interconnect the audio signals between the converter, transmitter, and receiver. One end of the cable, terminated in a 5-contact connector, plugs into the converter. The cable branches into two parts at approximately the midpoint of its length. The wires that are to be connected to the transmitter are terminated in a 10-contact connector; those to be connected to the receiver are terminated in a 12-contact connector.

13. Additional Equipment Required

For normal operation of the radio set (that is, working into a telephone system), additional equipment is not required. However, if the radio set is to be modulated by the operator, a field telephone set must be connected to the telephone line terminals at the rear of the converter. A field telephone set is not supplied with the radio set and must be requisitioned separately.

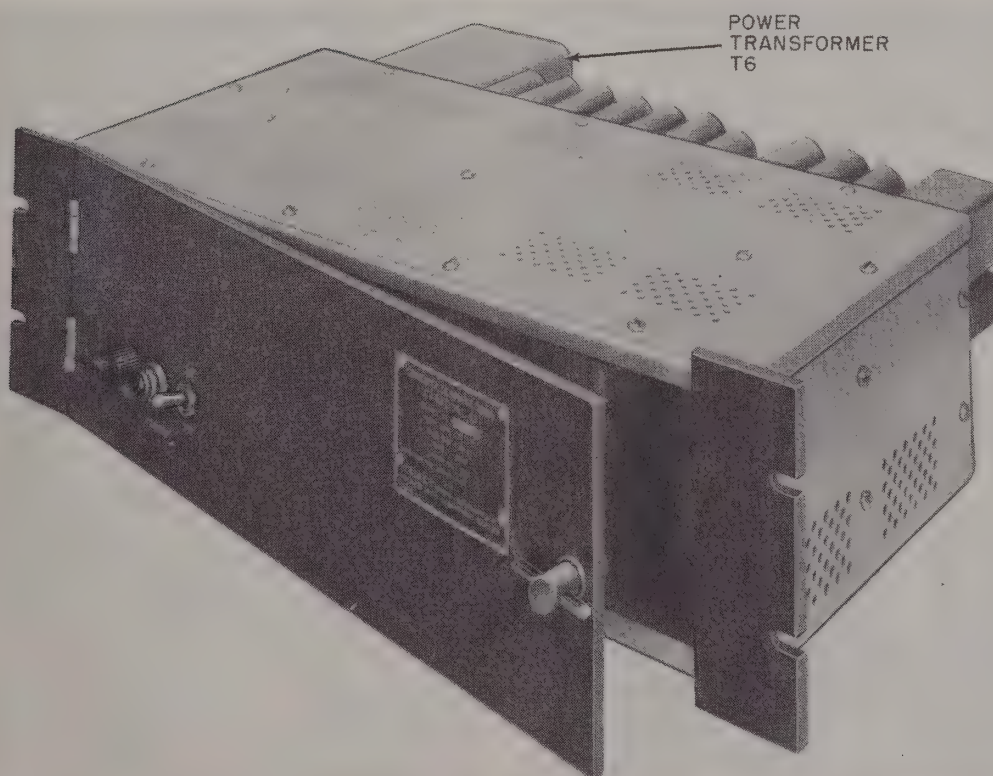
14. Differences in Models

The unlettered and A models of the receiver and transmitter are identical in circuitry and operation. The unlettered models, however, contain commercial components and the A models contain Jan-standard components.



TM212-10-4

Figure 4. Radio receiver R-748(*)/TRC-47.



TM 212-10-5

Figure 5. Telephone signal converter CV-542/TRC-47.

CHAPTER 2 INSTALLATION

15. Unpacking

(fig. 6)

a. Packaging Data.

- (1) All components of Radio Set AN/TRC-47 are cushioned and packaged within individual water-resistant fiberboard cartons. These cartons are sealed with waterproof

tape. The individually packaged components are packed in three wooden boxes. Each box is reinforced with flat steel strapping.

- (2) When packed for shipment, the components of the radio set are placed in wooden boxes as follows:

Box No.	Height (in.)	Width (in.)	Depth (in.)	Volume (cu ft)	Unit weight (lb)	Contents
1 of 3	31 1/2	20	24	8.6	161	Transmitter, receiver, converter, and power cables.
2 of 3	25	19	27	7.4	110	Equipment cabinet, antenna cables, audio cable, and spare parts.
3 of 3	9	47	93	22	130	Antennas.

b. *Removing Contents.* Unpack each box as follows:

- (1) Use a pair of metal shears and cut the steel strapping just below the box cover. Do not attempt to pry off the straps; the equipment may be damaged.
- (2) Use a nail puller and remove the nails from the box cover. Remove the cover.
- (3) Carefully remove each fiberboard packaged component from the box.
- (4) Cut through three of the upper edges of each fiberboard carton. The uncut edge on each carton will act as a hinge for the top cover of the carton. Open the top of each carton and remove the components.
- (5) Be sure to remove the power cables from the side fillers in the transmitter, receiver, and converter cartons before discarding the filler material.

16. Checking Unpacked Equipment

a. *Inspect the equipment for damage incurred during shipment. Inspect for such damage as broken tubes, broken glass on the transmitter meter, severely kinked or cut cables, bent front panels, bent antenna ground plane or reflector rods, damaged insulator on the antenna radiator element, and dented or bent equipment cabinet. If the equipment has been damaged, refer to paragraph 2*

b. The components of the radio set are shipped with all tubes, fuses, and crystals installed. Check the seating of the tubes and crystals in their sockets and the condition of all fuses. Any of these parts that are damaged should be replaced with spares.

- (1) *Tubes and crystals.* Part of the tube complement of each component can be reached from the rear of the component chassis. The rest of the receiver and converter tubes and the receiver crystal can be reached by opening the front panel door on each component. On the transmitter, in addition to opening the front panel door, an rf shielding cage at the rear of the chassis must be removed to expose five tubes and a crystal. To take off the cage, remove the two machine screws at its rear and pull the cage outward from the chassis.
- (2) *Fuses.* Be sure that the proper value fuse is inserted in the fuse holder of each component. The following chart shows the proper value of each fuse and references a figure that shows its location.

Component	Fuse symbol	Rating (amp)	Reference (fig. No.)
Transmitter	F1	2 Slo Blo	11
Receiver	F1	1 Slo Blo	13
Converter	F1	1 Slo Blo	12

c. Be sure that the equipment is complete as listed on the packing slip. ~~(If a packing slip is not available, check it against the table of components (par. 5).)~~

17. Siting

a. Locate the radio set so that the antenna can be placed as high above ground level and surrounding objects as possible. An unobstructed line-of-sight path should exist between the antennas and those at the opposite end of the radio link. Signals from the radio transmitter have a much greater range if the antenna is high and clear of hills, buildings, cliffs, woods, and other obstructions. Depressions, valleys, and other low places are poor locations for radio reception and transmission because the surrounding terrain absorbs much of the rf energy. Do not operate the set close to metal structures. The radio set should be housed close enough to the base of the antenna mast so that the length of the available antenna cable will permit the antennas to be mounted as high as possible on the mast. Avoid installing the radio set near sources of radio interference such as power lines, motor pools, or main highways.

b. Place the equipment cabinet on a table or bench capable of supporting the weight of the radio set and within 5 feet of an alternating-current (ac) power outlet. The sides of the equipment cabinet should be kept clear to allow free circulation of air through the side louvers. If possible, the rear of the cabinet should be exposed to allow removal of the rear panel and access to the rear of the component chassis.

18. Installation of Transmitter, Receiver, and Converter

Note. Make arrangements to have a Field Radio Repairman perform the initial adjustments required upon completion of the installation procedures outlined below.

To install the equipment in the equipment cabinet, proceed as follows:

a. Lay the equipment cabinet on its back and remove the 12 mounting screws from the left and right edges of the front opening.

b. Grasp the receiver at the left and right edges of its front panel and lower it into the front opening in the equipment cabinet until it is suspended by the outer edges of its front panel.

c. Aline the holes at the edges of the receiver front panel with the bottom mounting screw holes in the equipment cabinet (as viewed with the equipment cabinet in its normal upright position). Insert and

finger-tighten a mounting screw in each of the four mounting holes.

d. Install the transmitter as outlined for the receiver (c above). Aline the mounting holes in the transmitter front panel with the center pairs of equipment cabinet mounting holes and insert and finger-tighten a mounting screw in each hole.

e. Similarly install the converter in the remaining (top) space in the equipment cabinet.

f. Tighten all mounting screws with a screwdriver and lift the equipment cabinet to its normal upright position.

19. Installation of Antenna AS-813/TRC-47 (fig. 7)

Mount the antennas high enough to allow an unobstructed line-of-sight path to the antennas at the site with which communications are being established. It is preferable to mount each antenna on a separate pole. The distance between the poles is not critical. However, both antennas may be mounted on one pole if the pole is long enough to allow the lower antenna to attain a line-of-sight condition. If both antennas are mounted on one pole, the receiving antenna should be mounted at the top. The transmitting antenna ground plane must be at least 5 feet below the lower pole clamp of the receiving antenna. The pole clamps supplied with the antenna are suitable for use with any type of pole, mast, or tower leg not exceeding 14 inches in diameter. ~~If a suitable pole is not already in place at the antenna site, a utility pole (common telephone pole) at least 30 feet long should be erected. Refer to TM 11-2262, Open Wire Pole Line Construction and Maintenance, for information on pole erection. If a tower leg (or any other structure) made of angle iron is used to support the antennas, a piece of wood or pipe should be placed in the angle at the points where the pole clamps are attached. This provides a larger gripping surface for the pole clamp chain. Assemble the pole clamps and the antennas on the ground. Install each antenna as follows:~~

a. Assembling and Attaching Pole Clamps.

- (1) Insert a J-bolt through the holes in the bracket on each pole clamp so that the threaded end of the bolt faces the angle in the pole clamp angle plate. Place a washer and nut on each J-bolt and tighten the nuts just enough for the end of each bolt to be flush with the outer side of each nut.

- (2) Unhook the chain from the hooked end of the J-bolt on the upper pole clamp (the one with the hinge bracket) and place the plate against the pole at the height desired for the ground plane. Place the plate so that the end of the clamp with the hinge bracket is uppermost and the angle of the plate points in the desired direction of communication.
- (3) Pass the chain around the pole and rehook the end of the chain to the J-bolt. Tighten the nut on the end of the J-bolt until it takes up enough on the bolt to tighten the chain firmly around the pole. If a pole or mast of very small diameter is used, the take-up with the J-bolt may not be enough. In this case, loosen the J-bolt and rehook the chain at a point three or four links back from the end of the chain.
- (4) Attach the lower pole clamp to the pole so that the holes in the brackets to which the adjustable supports attach are at the lower end and are exactly $\frac{35}{16}$ inches below the mounting holes in the hinge bracket on the upper pole clamp. Attach the clamp as outlined in (2) and (3) above. (4)

Assembling Antenna.

- (1) Place the radiator over the slots that run from the center to the front edge of the ground plane. Pass the connector at the radiator base through the center slot and align the holes in the radiator base with the outer slots. Insert a carriage bolt through each hole and the slot below it. Be sure that the bolts are firmly seated in the rectangular holes. Place a flatwasher, lockwasher, and wingnut on each bolt. Tighten the wingnuts.

Caution: Be extremely careful when handling the radiator during the assembly, adjustment, and mounting procedures. The insulator at the base of the radiator element is fragile and can be easily broken if mishandled.

- (2) Align the hole in one end of an adjustable support with the hole in the vertical edge at the side of the ground plane. Insert a bolt through these holes and finger-tighten a nut (over a washer) on its end. Repeat the procedure with the remaining adjustable support and the other side of the ground plane.

- (3) Place a nut and washer in that order, on the threaded end of a reflector rod. Thread the nut as far as it will go and insert the end of the rod through one of the holes along the edge of the ground plane. Place a washer and nut on the threaded end extending through the ground plane and firmly tighten the nut. Repeat this procedure with all reflector rods.

c. Adjusting Radiator. Before mounting the antenna, adjust the height and position of the radiator for the frequency to be used and connect the antenna cable to the radiator. After adjusting the radiator, connect the cable to the radiator connector at the underside of the ground plane. Adjust the radiator as follows:

- (1) Refer to the graph in figure 8. Locate the point that indicates the desired frequency along the base of the graph (horizontal axis). Draw a vertical line perpendicular to the base from that point until it crosses the diagonal line shown on the graph. Draw a horizontal line from the crossing point to the left edge of the graph (vertical axis). The point where this line crosses the vertical axis represents the distance (F) in inches that the radiator should be from the rear of the ground plane.
- (2) Loosen the four wingnuts that hold the radiator to the ground plane and adjust the radiator for the distance determined in (1) above. Retighten the wingnuts.
- (3) Determine the proper height (H) for the radiator element, using the graph in figure 9 the same as in (1) above.
- (4) Loosen the clamp nut on the radiator and slide out the inner rod until the total height of the radiator is correct for the operating frequency. Retighten the clamp nut.

d. Mounting Antenna.

- (1) Use the hole provided and tie a rope to the apex of the antenna, and hoist the antenna assembly up the pole to the desired position. If two antennas are being installed on one pole, complete the upper installation first. Be sure the radiator and reflectors are turned away from the pole. Align the holes of the antenna hinge between the bracket holes of the upper pole clamp. Place a flatwasher on the shank of the $\frac{1}{2}$ -inch hinge bolt and insert the bolt through all

three holes. Place another flatwasher on the end of the bolt; screw on and tighten the end nut.

- (2) Grasp the free ends of the ~~adjustable~~ supports and swing them in toward the pole. Use the supports to push the ground plane to a horizontal position. Fasten the ~~adjustable~~ supports to the brackets on the lower pole clamp by using the $\frac{3}{8}$ -inch bolts and washers provided.
- (3) The antenna must be adjusted so that the radiator adjustment slot in the ground plane points directly at the distant antennas with which communications are being established. If the distant antennas are higher or lower than the ones being installed the angle of the ground plane with respect to, horizontal must be adjusted. ~~Adjust the ground plane to the desired position (above or below horizontal) by turning the turnbuckles on the adjustable supports. If the range of the turnbuckles is not sufficient, return them to the midpoints in their adjustment range and loosen the lower pole clamp. Move the pole clamp up or down until the ground plane is at approximately the correct position~~

~~and retighten the pole clamp. Use the turnbuckles to complete the adjustment to the exact position desired.~~

- (4) Allow 1 to 2 feet of slack and carefully bind the antenna cable to the mounting pole or mast. Use friction tape or cable clamp. It is important that the weight of the cable be kept off the antenna, particularly in regions where high winds prevail.

20. Connections

After installing the components, connect them according to the cabling diagram (fig. 10). Remove the rear panel of the equipment cabinet to gain access to the various receptacles at the rear of the components. When connecting the audio cable, be sure that the branched end with the 10-contact connector is connected to the transmitter and that the one with the 12-contact end is connected to the receiver. Cord CG-122A/U need be used only when the 150-foot antenna cable is not long enough. If the 150-foot antenna cable is of sufficient length it should be connected directly to the equipment. After connecting all cables, replace the rear panel. Guide all external cables through the cutouts at the lower left- and right-hand corners of the rear panel.

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(3) Insert the threaded end of a reflector rod through a hole along the upper edge of the ground plane. Thread on a nut as far as it will go. Place a flat washer on the rod and insert the rod through the lower hole. Place a lockwasher and a nut over the bottom end of the rod and tighten the nut. Repeat this procedure for all reflector rods.

communication.

(2) Pass the chain around the pole and rehook

procedure with all reflector rods.

Before mounting the an-

3.1 Mount one of the furnished pole brackets on each side of the pole (fig. 7). Use four lag screws and four lockwashers for each bracket. Mount the brackets so that the arms extend at right angles to the desired direction of communication.

U-bolt and rehook the chain at a point three or four links back from the end of the chain.

(4) Attach the lower pole clamp to the pole so that the holes in the brackets to which the adjustable supports attach are at the lower end and are exactly $\frac{3}{8}$ inches below the mounting holes in the hinge bracket on the upper pole clamp. Attach the

(1) Refer to the graph in figure 8. Locate the point that indicates the desired frequency along the base of the graph (horizontal axis). Draw a vertical line perpendicular to the base from that point until it crosses the diagonal line shown.

(4) Do not tighten the clamps all the way; save this operation until final adjustments can be made only by moving the lower pole clamp assembly.

and radiator base with slots. Insert a carriage bolt through each hole and the slot below it. Be sure that the bolts are firmly seated in the rectangular holes. Place a flatwasher, lockwasher, and wingnut on each bolt. Tighten the wingnuts.

Caution: Be extremely careful when handling the radiator during the assembly, adjustment, and mounting procedures. The insulator at the base of the radiator element is fragile and can be easily broken if mishandled.

(2) Align the hole in one end of an adjustable support with the hole in the vertical edge at the side of the ground plane. Insert a bolt through these holes and finger-tighten a nut (over a washer) on its end. Repeat the procedure with the remaining adjustable support and the other side of the ground plane.

wingnuts that hold the radiator to the ground plane and adjust the radiator for the distance determined in (1) above. Retighten the wingnuts.

(3) Determine the proper height (H) for the radiator element, using the graph in figure 9 the same as in (1) above.

(4) Loosen the clamp nut on the radiator and slide out the inner rod until the total height of the radiator is correct for the operating frequency. Retighten the clamp nut.

d. Mounting Antenna.

(1) Use the hole provided and tie a rope to the apex of the antenna, and hoist the antenna assembly up the pole to the desired position. If two antennas are being installed on one pole, complete the upper installation first. Be sure the radiator and reflectors are turned away from the pole. Align the holes of the antenna hinge between the bracket holes of the upper pole clamp. Place a flatwasher on the shank of the $\frac{1}{2}$ -inch hinge bolt and insert the bolt through all

three holes. Place another flatwasher on the end of the bolt; screw on and tighten the end nut.

(2) Open the free ends of the adjustable arm

~~and retighten the pole clamp. Use the turnbuckles to complete the adjustment to the exact position desired.~~

2.1) Assemble the turnbuckles between the lower edge of the ground plane and pole brackers as shown in figure 7. Draw the turnbuckles tight.

~~Antenna must be adjusted so that the radiator adjustment slot in the ground plane points directly at the distant antennas with which communications are being established. If the distant antennas are higher or lower than the ones being installed the angle of the ground plane with respect to horizontal must be adjusted. Adjust the ground plane to the desired position (above or below horizon).~~

20. Connections

After installing the components, connect them according to the cabling diagram (fig. 10). Remove the rear panel of the equipment cabinet to gain access to the various receptacles at the rear of the components. When connecting the audio cable, be sure that the branched end with the 10-contact connector is connected to the transmitter and that the

(3) Move the lower pole clamp up or down until the ground plane is at the correct position, and tighten the clamp.

~~is at approximately the correct position~~

lower left- and right-hand corners of the rear panel.

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Change - 5
When Replacing the rear panel, connect the power cord from the ventilating fan to receptacle J6 at the rear of the converter.

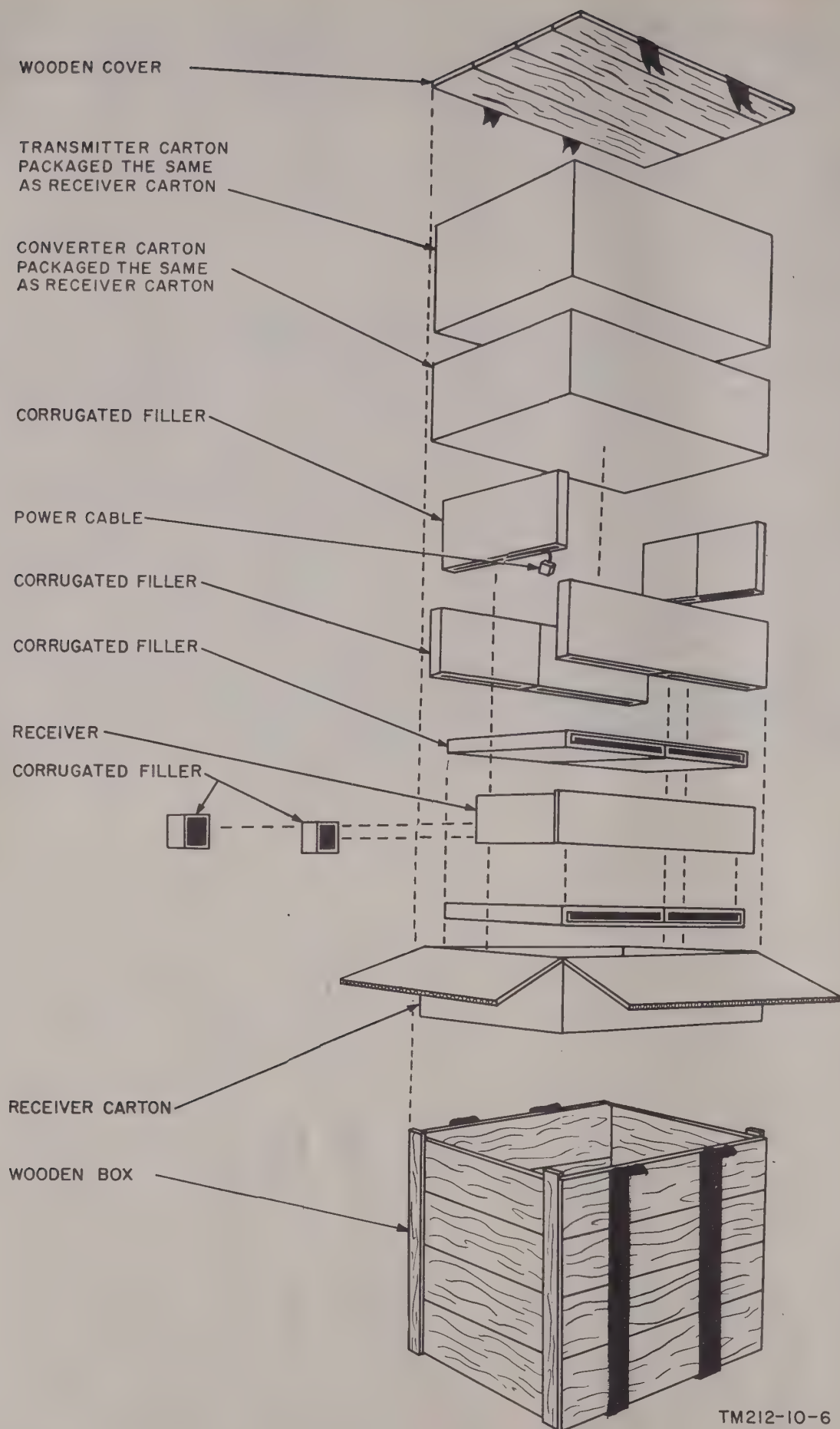
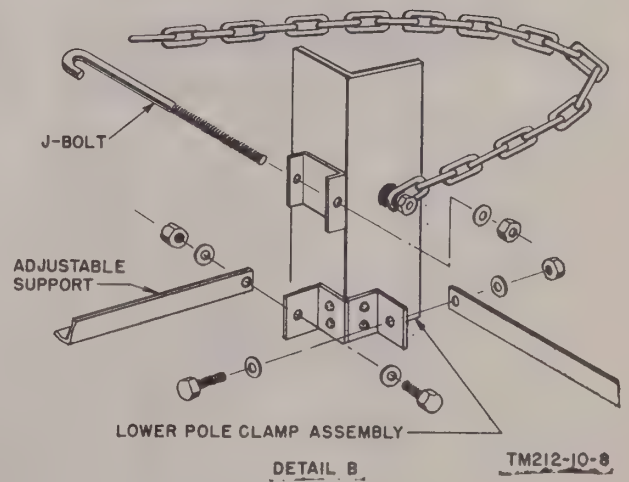
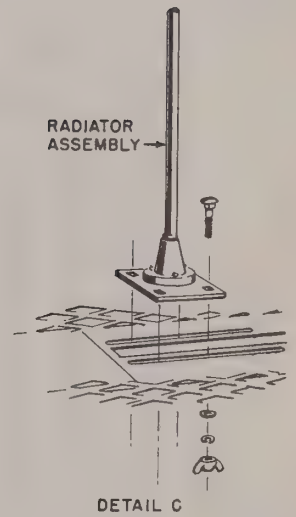
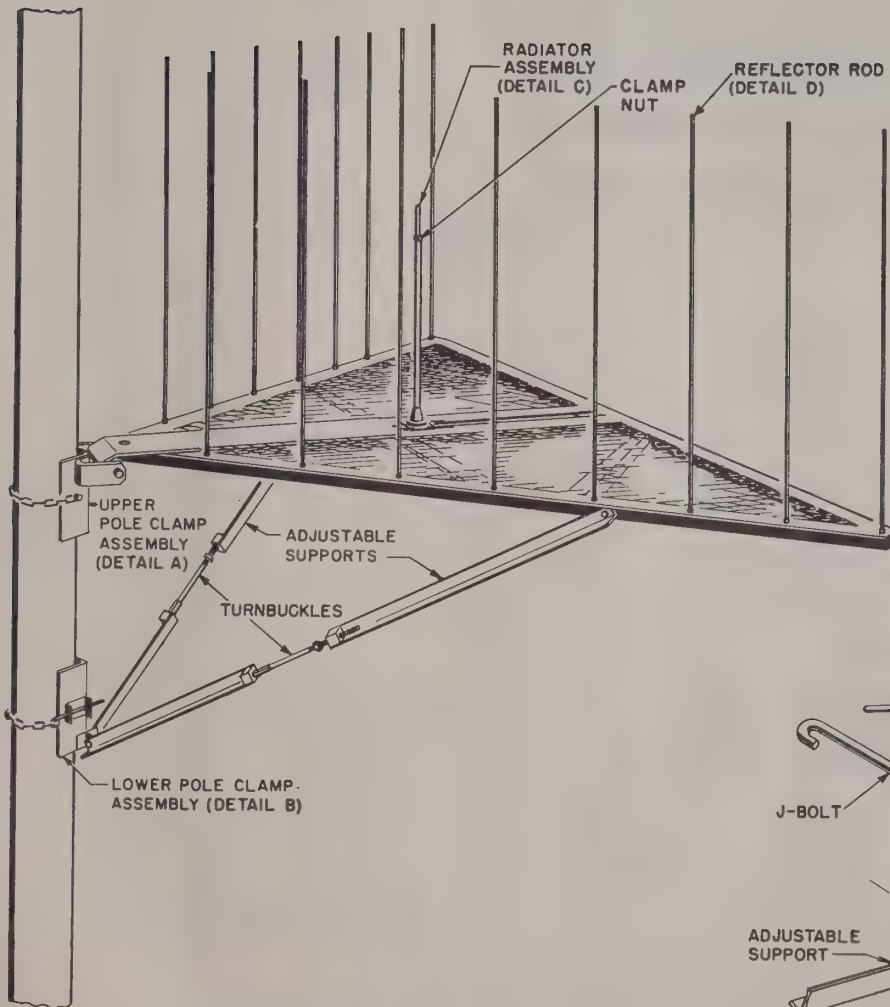
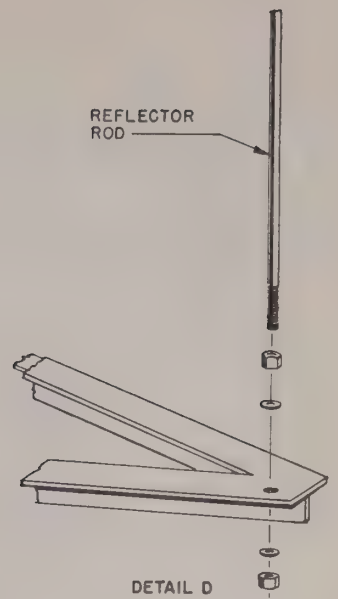
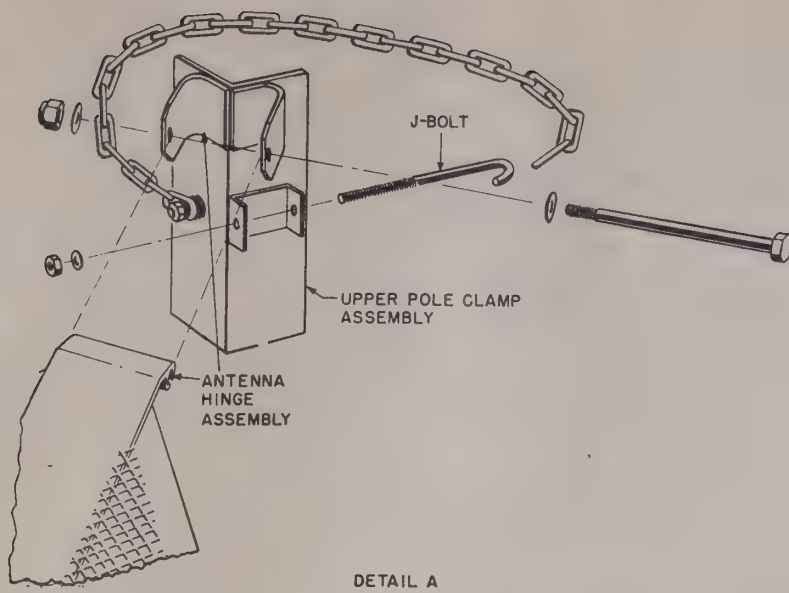


Figure 6. Typical packing.



TM212-10-8

Figure 7. Assembly and installation of antenna AS-813/TRC-47.

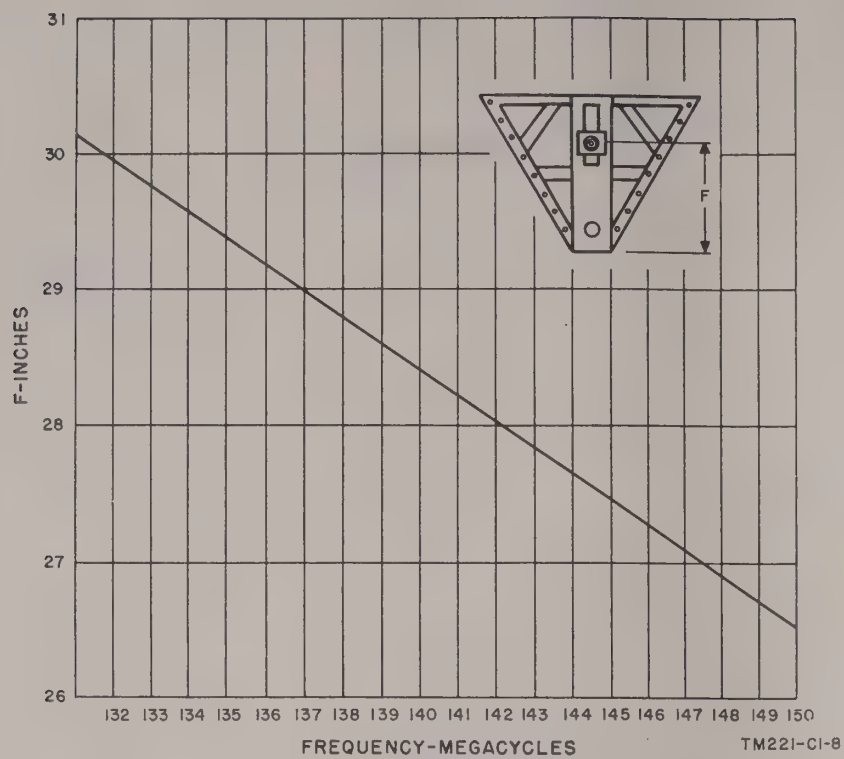


Figure 8. Antenna radiator, position adjustment graph.

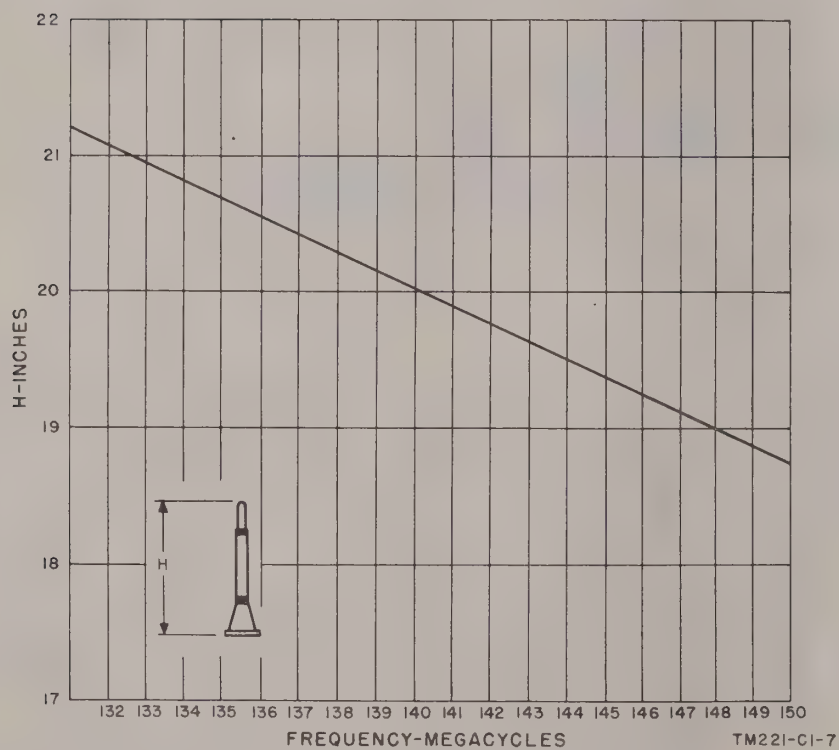
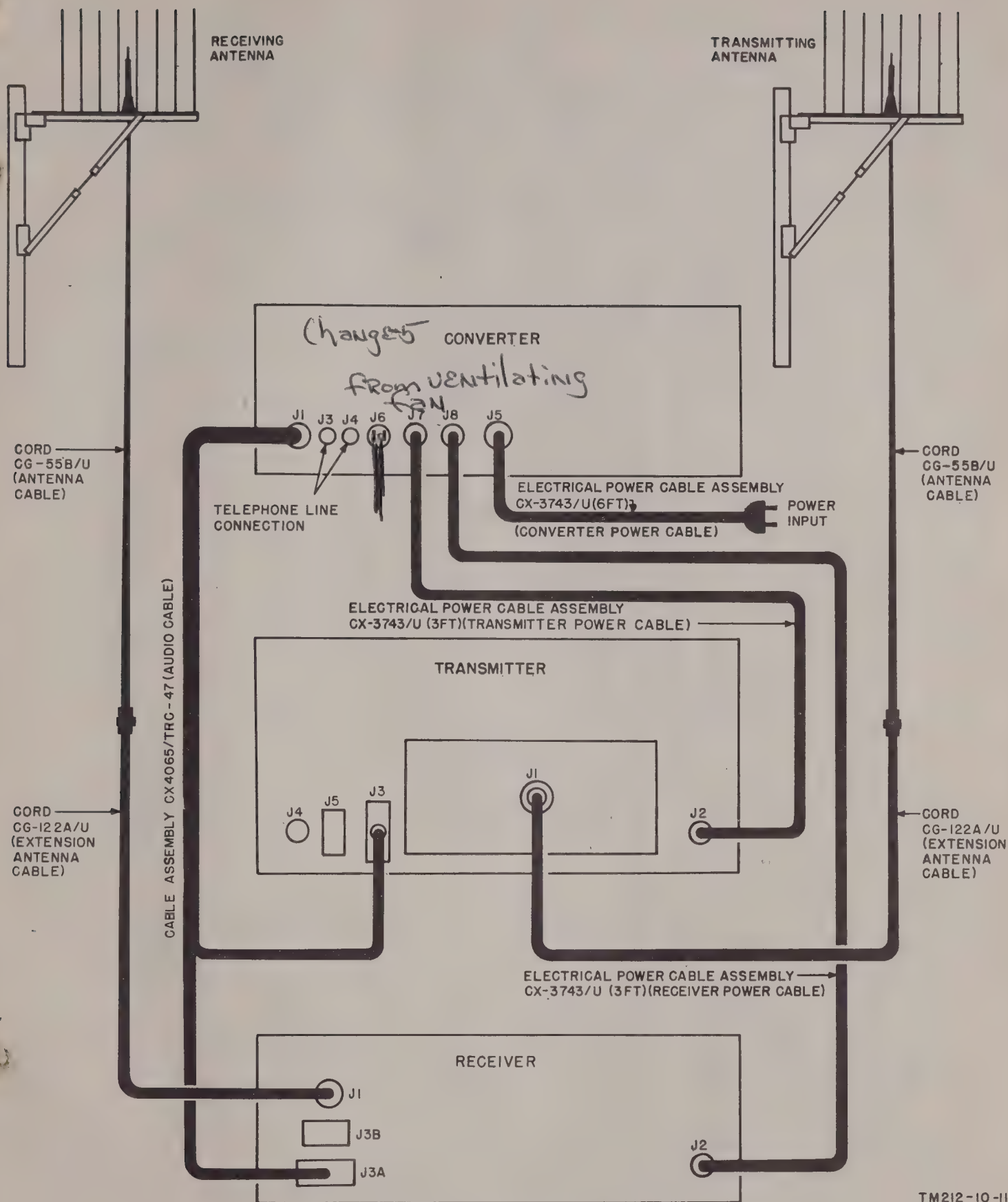
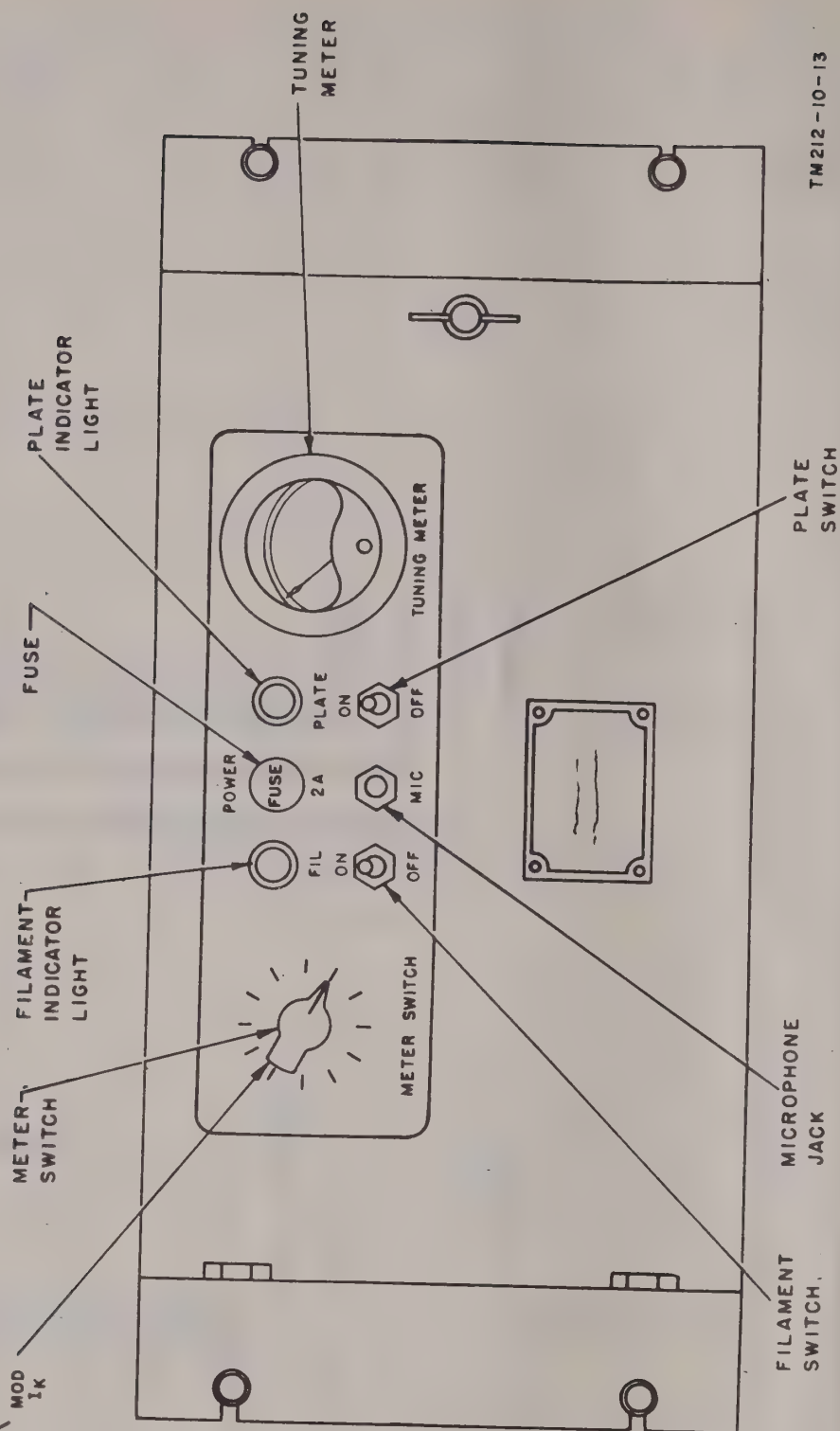
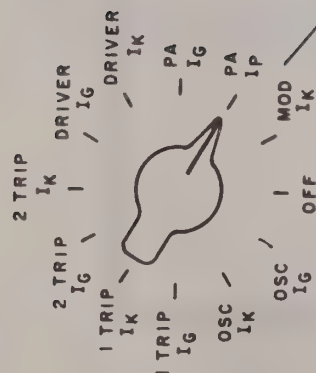


Figure 9. Antenna radiator, height adjustment graph.



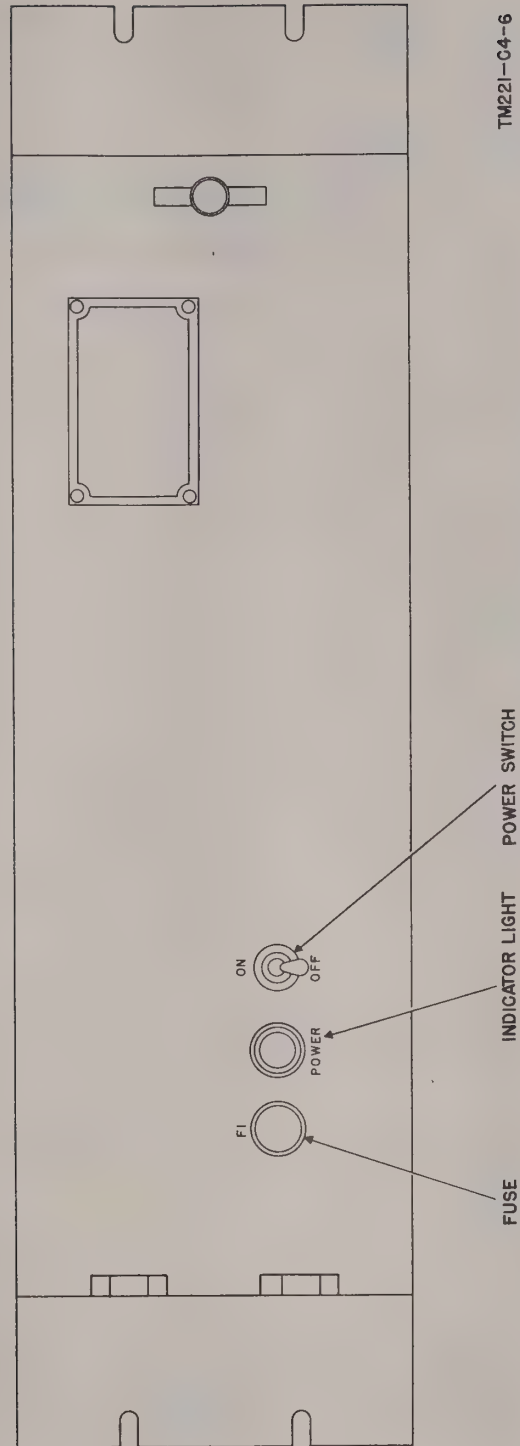
TM212-10-11

Figure 10. Radio set AN/TRC-47, cabling diagram.



TM212-10-13

Figure 11. Radio transmitter T-593(*)/TRC-47, operating controls.



TM221-C4-6

Figure 12. Telephone signal converter CV-542/TRC-47, operating controls.

CHAPTER 3

OPERATING INSTRUCTIONS

Section I. CONTROLS AND INSTRUMENTS

Note. This section describes, locates, and illustrates the controls and instruments provided for the operator to properly operate the equipment.

21. Radio Receiver R-748(*)/TRC-47, Operating Controls (fig. 13)

The following table lists the receiver operating controls and their functions:

Control	Function
ON-OFF switch-----	Turns receiver on and off.
SENSITIVITY control	Varies the sensitivity of the receiver.
VOLUME control-----	Varies the volume of the sound from the loudspeaker.
SQUELCH-OPEN switch.	In the SQUELCH position, allows the audio to be squelched during no signal conditions. In the OPEN position, removes the squelch action from the receiver.
POWER indicator light	Lights when power is applied to receiver.
STDBY indicator light.	Lights under no signal conditions. Goes out when distant transmitter operates and signal is received.
REC indicator light----	Lights when receiver is receiving a signal.

22. Radio Transmitter T-593(*)/TRC-47, Operating Controls (fig. 11)

The following table lists the transmitter operating controls and instruments and their functions:

Control or instrument	Function
FIL switch-----	In ON position, applies power to transmitter tube filaments and places transmitter in readiness for operation. In OFF position, removes all power from transmitter.
PLATE switch-----	In ON position, applies plate power to transmitter circuits and puts transmitter in operation (FIL switch must be in ON position). In OFF position, removes plate power leaving transmitter in standby condition.

Control or instrument	Function																										
FIL indicator light----	Lights when FIL switch is in ON position and ac power is applied to transmitter.																										
PLATE indicator light.	Lights when plate power is applied and transmitter is operating.																										
MIC jack-----	Not used for Radio Set AN/TRC-47.																										
TUNING_METER----	Indicates current in any one of 11 transmitter circuits as determined by METER SWITCH.																										
METER SWITCH----	Connects meter to any one of 11 transmitter circuits. Functions of switch positions are as follows:																										
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MOD I _K	Indicates cathode current of modulator tubes.																										

23. Telephone Signal Converter CV-542/ TRC-47, Operating Controls (fig. 12)

The only operating control on the converter is the ON-OFF switch. This switch controls the power to the unit. A POWER indicator light indicates, by lighting, when the ON-OFF switch is in the ON position and power is applied. (-5)

Section II. OPERATION UNDER USUAL CONDITIONS

See C-8 for added "CAUTION" paragraph

24. Starting Procedure

a. Place the power switch on the converter, transmitter, and receiver in the ON position.

b. Allow 5 minutes for the equipment to warm up and place the transmitter PLATE switch in the ON position.

c. ~~Adjust the SENSITIVITY and squelch controls as follows:~~ *Changed by C-1 25 Feb 60*

- 1) Turn the SENSITIVITY control completely clockwise.
- 2) While no signal is being received, set the SQUELCH-OPEN switch to the SQUELCH position and rotate the SENSITIVITY control counterclockwise until the noise from the receiver quiets. If squelch action is not desired, place the squelch switch in the OPEN position after the above adjustment is made.

25. Operation

No action is required on the part of an operator to control the equipment after it has been started (par. 24). The radio set automatically receives and passes to the telephone lines all incoming voice and ringing signals from the distant station and automatically transmits to the distant station all outgoing voice and ringing signals from the telephone line. However, after it has been determined that satisfactory communication has been established with the distant station, the operator should record the normal reading on the transmitter TUNING METER for each position of the METER SWITCH. These normal readings then may be used as a reference when checking for normal operation (par. 30).

26. Antijamming Information

a. Recognition and Identification of Jamming.

Jamming of a receiver is accomplished by the enemy transmitting a strong signal on the same frequency as the desired signal. This causes strong interference and unusual noises in the receiver and destroys the intelligibility of the desired signal. However, unusual noises and interference in the receiver also may be caused by a defect in the receiver. To determine whether the interference is originating in the receiver, disconnect the antenna cable and short terminal J1 at the rear of the receiver to the chassis.

If the interference continues, the receiver is defective. Jamming signals may consist of noise, laughter, singing, music, various tones (steady or keyed), or most any unusual sound or combination of these sounds. For the purpose of identification some of the more prominent types of jamming are described below.

- (1) *Spark.* This is one of the simplest, most effective, and most easily produced jamming signals. It sounds very rough and raspy and sometimes like an electric motor with sparking brushes. This type of signal is very broad and interferes with a large portion of the frequency spectrum.
- (2) *Sweep-through.* This signal is the result of sweeping or moving a carrier back and forth across the frequency at a slow or rapid rate. It produces a sound such as that of a low-flying plane passing overhead. This type of jamming is effective over a broad range of frequencies and when varied rapidly is very effective against all types of voice signals.
- (3) *Stepped tones or bagpipes.* This signal usually consists of several separate tones transmitted in the order of increasing pitch and then in the order of decreasing pitch. This is repeated over and over. The audible effect is like the sound of a Scottish bagpipe.
- (4) *Noise.* Noise is considered one of the better types of jamming. It produces a sound similar to that heard when a receiver is not tuned to a station and the volume or gain control is turned to maximum. For this reason it is sometimes very hard to detect as jamming.
- (5) *Gulls.* This signal consists of a quick rise and slow fall of a variable audio frequency. The sound is similar to the cry of the sea gull.
- (6) *Tone.* This signal consists of a single audio frequency of unvarying tone. It produces a steady howl. Another use of tone is to vary it slowly. This produces a howling sound of varying pitch.

CHAPTER 3

OPERATING INSTRUCTIONS

Section I. CONTROLS AND INSTRUMENTS

Note. This section describes, locates, and illustrates the controls and instruments provided for the operator to properly operate the equipment.

21. Radio Receiver R-748(*)/TRC-47, Operating Controls (fig. 13)

The following table lists the receiver operating controls and their functions:

Control	Function
ON-OFF switch.....	Turns receiver on and off.
SENSITIVITY control	Varies the sensitivity of the receiver.
VOLUME control.....	Varies the volume of the sound from the loudspeaker.
SQUELCH-OPEN switch.	In the SQUELCH position, allows the audio to be squelched during no signal conditions. In the OPEN position, removes the squelch action from the receiver.
POWER indicator light	Lights when power is applied to receiver.
STDBY indicator light	Lights under no signal conditions. Goes out when distant transmitter operates and signal is received.
REC indicator light....	Lights when receiver is receiving a signal.

22. Radio Transmitter T-593(*)/TRC-47, Operating Controls (fig. 11)

The following table lists the transmitter operating controls and instruments and their functions:

Control or instrument	Function
FIL switch.....	In ON position, applies power to transmitter tube filaments and places transmitter in readiness for operation. In OFF position, removes all power from transmitter.
PLATE switch.....	In ON position, applies plate power to transmitter circuits and puts transmitter in readiness for operation.

Control or instrument	Function																										
FIL indicator light....	Lights when FIL switch is in ON position and ac power is applied to transmitter.																										
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MIC jack.....	Not used for Radio Set AN/TRC-47.																										
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23. Telephone Signal Converter CV-542 TRC-47, Operating Controls (fig. 12)

change-5

The ventilating fan mounted at the rear of the equipment cabinete, will operate to blow air out of the unit.

Section II. OPERATION UNDER USUAL CONDITIONS

See C-8 for added "CAUTION" paragraph

24. Starting Procedure

- a. Place the power switch on the converter, transmitter, and receiver in the ON position.
- b. Allow 5 minutes for the equipment to warm up and place the transmitter PLATE switch in the ON position.

If the interference continues, the receiver is defective. Jamming signals may consist of noise, laughter, singing, music, various tones (steady or keyed), or most any unusual sound or combination of these sounds. For the purpose of identification some of the more prominent

WARNING: THE SENSITIVITY CONTROL IS SET TO THE CORRECT LEVEL BY MAINTENANCE PERSONNEL DURING ALINEMENT. DO NOT READJUST THIS CONTROL. UNAUTHORIZED READJUSTMENT MAY RESULT IN LOSS OF COMMUNICATION.

- c. During no-signal conditions, squelch the receiver audio output by placing the SQUELCH-OPEN switch in the SQUELCH position. If squelch action is not desired, set the SQUELCH-OPEN switch to the OPEN position.

... required on the part of an operator to control the equipment after it has been started (par. 24). The radio set automatically receives and passes to the telephone lines all incoming voice and ringing signals from the distant station and automatically transmits to the distant station all outgoing voice and ringing signals from the telephone line. However, after it has been determined that satisfactory communication has been established with the distant station, the operator should record the normal reading on the transmitter TUNING METER for each position of the METER SWITCH. These normal readings then may be used as a reference when checking for normal operation (par. 30).

26. Antijamming Information

a. *Recognition and Identification of Jamming.* Jamming of a receiver is accomplished by the enemy transmitting a strong signal on the same frequency as the desired signal. This causes strong interference and unusual noises in the receiver and destroys the intelligibility of the desired signal. However, unusual noises and interference in the receiver also may be caused by a defect in the receiver. To determine whether the interference is originating in the receiver, disconnect the antenna cable and short terminal J1 at the rear of the receiver to the chassis.

or frequencies and when varied rapidly is very effective against all types of voice signals.

- (3) *Stepped tones or bagpipes.* This signal usually consists of several separate tones transmitted in the order of increasing pitch and then in the order of decreasing pitch. This is repeated over and over. The audible effect is like the sound of a Scottish bagpipe.
- (4) *Noise.* Noise is considered one of the better types of jamming. It produces a sound similar to that heard when a receiver is not tuned to a station and the volume or gain control is turned to maximum. For this reason it is sometimes very hard to detect as jamming.
- (5) *Gulls.* This signal consists of a quick rise and slow fall of a variable audio frequency. The sound is similar to the cry of the sea gull.
- (6) *Tone.* This signal consists of a single audio frequency of unvarying tone. It produces a steady howl. Another use of tone is to vary it slowly. This produces a howling sound of varying pitch.

b. *Antijamming Procedures.* If it is known or suspected that the receiver is being jammed, notify the immediate superior officer immediately and allow the equipment to continue to operate. Attempt to increase the intelligibility of the desired signal as outlined below.

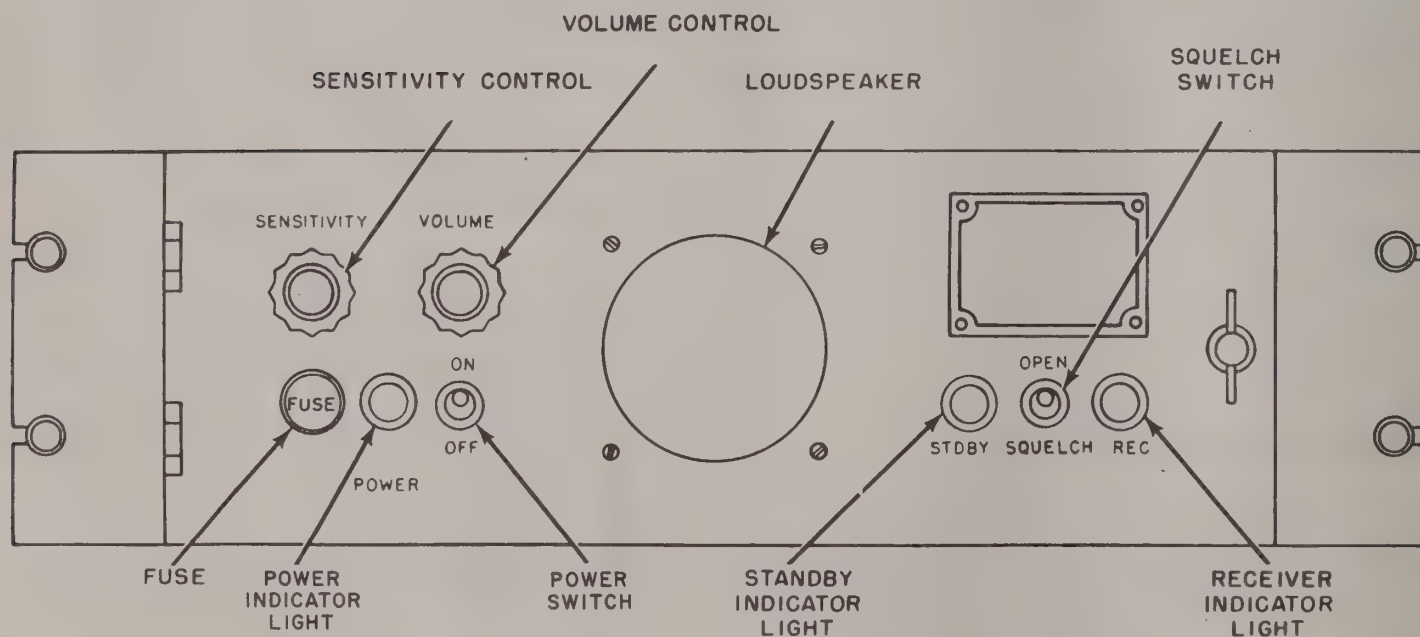
- (1) Turn the SENSITIVITY control clockwise to increase the sensitivity. This may drive a stronger jamming signal to saturation and raise the level of the weaker desired signal so that read-through is possible.
- (2) Turn the SENSITIVITY control counter-clockwise. If the desired signal is stronger than the jamming signal, the reduction in sensitivity may eliminate the jamming and allow the desired signal through.
- (3) Using the turnbuckles on the ground plane supporting legs, adjust the angle of the receiving antenna above and below the horizontal. This may alter the radiation pattern enough to exclude the jamming signal. If necessary reposition the lower antenna pole clamp to obtain greater angular adjustment.

- (4) Rotate the antenna to either side of its normal position on the pole. This may allow reception of a reflection of the desired signal while excluding the jamming signal.
- (5) If the above procedures do not provide sufficient signal separation for operation, request that the operating frequency be changed.

27. Stopping Procedure

a. Radio Set AN/TRC-47 is designed for continuous operation and the life of the tubes will be extended if the filaments remain lighted. Therefore, the equipment should not be turned off as long as it is operating normally.

b. The transmitter may be placed in a standby condition by placing the PLATE switch in the OFF position. This removes plate power and allows the filaments to remain lighted. When necessary, all power may be removed from the equipment by placing the converter ON-OFF switch, the receiver ON-OFF switch, and the transmitter FIL switch in the OFF position.



TM 212-10-17

Figure 13. Radio Receiver R-748(*)/TRC-47, operating controls.

CHAPTER 4

MAINTENANCE INSTRUCTIONS

28. Scope of Operator's Maintenance

The maintenance duties normally performed by the operator of the radio set are limited to those listed in paragraphs 29 and 30. These procedures do not require special tools or test equipment.

29. Preventive Maintenance

a. DA Form 11-238 (figs. 14 and 15) is a preventive maintenance list to be used by the operator. Items not applicable to operator's maintenance of this radio set are lined out in the figure. References in the ITEM block in the figure are to paragraphs that contain information that will be helpful when performing the maintenance. Instructions for the use of the form appear on the form.

b. For all cleaning operations, use a clean cloth and remove dust, dirt, moisture, and grease from all parts of the equipment. If necessary, wet the cloth with Cleaning Compound (Federal Stock No. 7930-395-9542) and then wipe the parts with a dry clean cloth.

30. Checks for Normal Operation

a. The operator of the radio set should periodically check to see that the equipment is operating normally. Any faulty operation that may be detected should be reported to a Field Radio Mechanic for repair.

b. To check the receiver, simply listen to the receiver speaker and determine that the incoming audio is clear and intelligible.

c. To check the transmitter, use the front panel TUNING METER. Turn the METER SWITCH to each position in turn and observe the meter indications. The meter readings should agree with the normal readings recorded when the equipment first was placed in operation (par. 25). The meter readings will vary slightly at different power outputs. Meter indications for a normally operating transmitter with a power output of 1 watt are shown in the following chart:

METER SWITCH position	Normal meter indications
OSC I _G	.42
OSC I _K	.55
1 TRIP I _G	.44
1 TRIP I _K	.32
2 TRIP I _G	.44
2 TRIP I _K	.54
DRIVER I _G	.37
DRIVER I _K	.41
PA I _G	.58
PA I _p	.24
MOD I _K	.66

See C-5

Superseded by C-5, 28 Aug 61

ADDITIONAL ITEMS FOR 2D AND 3D ECHELON INSPECTIONS		CONDITION
26. INSPECT ANTENNA FOR ECCENTRICITIES, CORROSION, LOOSE FIT, DAMAGED INSULATORS AND REFLECTORS.		
27. CHECK FOR NORMAL OPERATION.		
28. BEFORE SHIPPING OR STORING, REMOVE BATTERIES.		

MAINTENANCE CHECK LIST FOR SIGNAL EQUIPMENT SOUND EQUIPMENT, RADIO, DIRECTION FINDING RADAR, CARRIER, RADIOSONDE AND TELEVISION (AR 750-625)																							
EQUIPMENT NOMENCLATURE RADIO SET AN/TRC-47																							
EQUIPMENT SERIAL NUMBER 000-00																							
<p>INSTRUCTIONS</p> <p>This form may be used for a period of one month by using the correct dates and weeks of the month. It is to be used as a Preventive Maintenance check list for Signal equipment in actual use, or for a check on equipment prior to issue.</p> <p>1. For detailed Preventive Maintenance instructions see: a. The Technical Manual (in TM 11 series) for the equipment. (See DA Pamphlet Number 310-4) b. The Supply Bulletin (SB 11-100 series) for the equipment. (See DA Pamphlet Number 310-4) c. The Department of the Army Lubrication Order. (See DA Pamphlet Number 310-4)</p> <p>2. The following action will be taken by either the Communications Officer/Chief for 1st echelon, or the Inspector for higher echelon: a. Enter Equipment Nomenclature and Serial Number. b. Strike out items that do not apply to the equipment.</p> <p>3. Operator/Inspector will enter in the columns entitled CONDITION, on the proper line, a notation regarding the condition, using symbols specified under LEGEND.</p> <p>4. After operator completes each daily inspection he will initial over the appropriate dates under "Daily Condition for Month", then return form to his supervisor.</p>																							
<table border="1"> <thead> <tr> <th colspan="3">TYPE OF INSPECTION</th> </tr> <tr> <th>OPERATOR</th> <th>2/3 ECHELON</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td>✓</td> <td></td> <td>7 Oct 57</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table>			TYPE OF INSPECTION			OPERATOR	2/3 ECHELON	DATE	✓		7 Oct 57												
TYPE OF INSPECTION																							
OPERATOR	2/3 ECHELON	DATE																					
✓		7 Oct 57																					
SIGNATURE <i>P. Enform</i>																							

DA FORM 11-238

REPLACES DA FORMS 11-238, 1 NOV 55; 11-239, 11-244, 11-246, 11-248, 11-249, 11-250, AND 11-251; WHICH ARE OBSOLETE.

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Figure 14. DA Form 11-238, pages 1 and 4.

Superseded by e-5 Aug 61

LEGEND for marking conditions:

Satisfactory, ✓
Adjustment, Repair or Replacement required, X.
Defect corrected, (X).

DAILY CONDITION FOR MONTH OF OCTOBER		DAILY CONDITION FOR MONTH OF												2D 3D ECH ELON			
		1	2	3	4	5	6	7	8	9	10	11	12		13	14	15
NO.	DAILY ITEM	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1.	COMPLETENESS AND GENERAL CONDITION OF EQUIPMENT. (Transmitter, receiver, casing, case, wire, cables, microphones, tubes, spare parts, technical manuals).	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2.	CLEAN DIRT AND MOISTURE FROM ANTENNA, MICRO- PHONES, HEADSET KEYS, JACKS, PLUGS, COMPONENT PANELS. PAR 34b	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3.	INSPECT CONTROLS FOR NORMAL OPERATION. TAP CONTROLS LIGHTLY FOR EVIDENCE OF CUT-OUT FROM LOOSE CONTACTS.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
4.	CHECK FOR NORMAL OPERATION OF EQUIPMENT. BE ALERT FOR UNUSUAL OPERATION OR CONDITION. PAR 35	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
WEEKLY		ADDITIONAL ITEMS FOR 2D AND 3D ECHELON INSPECTIONS															
CONDITION EACH WEEK		CONDITION															
1ST 2D 3D 4TH 5TH		CONDITION															
5.	CLEAN AND TIGHTEN EXTERIORS OF CASES, RACKS, MOUNTS, TRANSMISSION LINES.	18. INSPECT SEATING OF READILY ACCESSIBLE PLUG- OUT ITEMS: TUBES, LAMPS, FUSES, CRYSTALS, CONNECTORS, VIBRATORS, PLUG-IN COILS.															
6.	INSPECT CASES, MOUNTS, ANTENNA- TOWERS AND EXPOSED METAL SURFACES FOR RUST, CORROSION.	16. INSPECT RELAYS AND CIRCUIT BREAKERS FOR LOOSE MOUNTING, BAD CONTACTS, MIS-ALIGNMENT OF CON- TACTS AND SPRINGS, PROPER SPRING TENSION.															
7.	INSPECT CORDS, CABLE, WIRE, SHOCK MOUNTS FOR CUTS, HIKES, BREAKS, FRAYING, UNDOVE STRAINS.	17. INSPECT VARIABLE CAPACITORS FOR DIRT, MIS-ALIGNMENT OF PLATES, LOOSE MOUNTINGS, MOISTURE.															
8.	ECHELON ANTENNA GUY WIRES FOR PROPER TENSION OR DAMAGE.	18. INSPECT RESISTORS, SUBSISTERS AND INSULATORS FOR CRACKS, CHIPPING, BLISTERING, MOISTURE, DISCOLORATION.															
9.	INSPECT CANNAS AND LEATHER- TAPES FOR WEEB, TEARS, FRAYING.	19. CLEAN AND TIGHTEN SWITCHES, TERMINAL BLOCKS, SWITCHES, RELAY CASES AND INTERIORS OF CHASSIS AND SUBSISTERS NOT READILY ACCESSIBLE.															
10.	INSPECT ACCESSIBLE ITEMS FOR LOOSE- NESS, SWITCHES, WHEELS, JACKS, CONNECTORS, RELAYS, TRANSFORMERS, MOTORS, FILTER- TUBES, TOWERS, ETC.	20. INSPECT TERMINAL BLOCKS FOR LOOSE- CONNECTED, CRACKS AND BREAKS.															
11.	CLEAN AND/OR INSPECT AIR FILTERS, GRASS- NAME PLATES, DIAL AND METER WINDOWS.	21. INSPECT TERMINALS OF LARGE PHASE CAPACITORS AND RESISTORS FOR DIRT, CORROSION, LOOSE CONTACTS.															
12.	INSPECT STORAGE BATTERIES FOR DIRT, LOOSE TERMINALS, SPECIFIC GRAVITY, DAMAGED CELLS, INSPECT DRY BATTERIES FOR LEAKAGE.	22. INSPECT TRANSFORMERS, TAPERS, POTENTIOMETERS, AND RESISTORS FOR OVERHEATING AND SH-LEAKAGE.															
ADDITIONAL ITEMS FOR 2D AND 3D ECHELON INSPECTIONS		23. INSPECT GENERATORS, AMPLIFIERS, DMM- MOTORS FOR BRUSH WEAR, SPRING TENSION, WIRING AND FITTING OF COMMUTATION.															
13.	INSPECT SHELTERS AND COVERS FOR NECESSARY WEATHER PROOFING, TEARS, FRAYING.	24. INSPECT CATHODE RAY TUBES FOR BURNT GREEN SPOTS.															
14.	CHECK TERMINAL BOX COVERS FOR CRACKS, DIRT, LEAKS, DAMAGED GASKETS, CRACKS.	25. INSPECT WATERPROOF GASKETS FOR LEAKS, WORN OR LOOSE PARTS.															

CONTINUED ON PAGE 4

3

GPO 1957 O-427034

Figure 15. DA Form 11-238, pages 2 and 3.

TM212-10-20

CHAPTER 5

DEMOLITION TO PREVENT ENEMY USE

31. Authority for Demolition

Demolition of the equipment will be accomplished only upon the order of the commander. The destruction procedures outlined in paragraph 32 will be used to prevent further use of the equipment.

32. Methods of Destruction

APPENDIX I
(See 07 for C7)

Use any of the following methods to destroy the equipment:

a. Smash. Smash the controls, tubes, coils, switches, capacitors, transformers, and meter; use sledges, axes, handaxes, pickaxes, hammers, or crowbars.

b. Cut. Cut the audio, power, and antenna cables; use axes, handaxes, or machetes.

c. Burn. Burn cords and technical manuals; use gasoline, kerosene, oil, flame throwers, or incendiary grenades.

d. Bend. Bend front panels, chassis, equipment cabinet, antenna ground plane, radiator, and reflector rods.

e. Explode. If explosives are necessary, use firearms, grenades, or TNT.

f. Dispose. Bury or scatter the destroyed parts in slit trenches, fox holes, or throw them into streams.

APPENDIX II (c-7)

OPERATOR MAINTENANCE REPAIR PARTS AND SPECIAL TOOLS LIST FOR RADIO SET AN/TRC-47

Section I. General

1. Scope

a. General. This appendix C-7 lists items supplied for initial operation and for running spares and accessories. The list includes tools, accessories and similar material issued as part of the major end item. This portion lists the basic allowance data for parts and accessories required for maintenance of Radio Set AN/TRC-47. These equipments are issued on the basis of allowances prescribed in equipment authorization tables and other documents which are a basis for requisitioning.

b. Columns. SOURCE, MAINTENANCE AND RECOVERABILITY CODE

- (1) *Federal or technical service stock number.*
The stock number column lists the 11 digit Federal stock number assigned by the Cataloging Division, OASD (S&L). In the absence of a Federal stock number, the technical service stock number will be used for requisitioning purposes.
- (2) *Designation by model.* This column lists parts for two or more models of a particular equipment or when differences in the same model occur. A dagger (†) indicates the model in which the part is used.
- (3) *Description.* Nomenclature or the standard item name and brief identifying data for each item is listed in this column. When requisitioning, enter the nomenclature and description on the requisition.
- (4) *Unit of issue.* The unit of issue is the supply medium by which the individual item is counted for procurement, storage, requisitioning, allowances, and issue purposes.
- (5) *Expendability.* Expendable items are indicated by the letter X; nonexpendable items are indicated by NX.
- (6) *Quantity authorized.* Under "Items Comprising an Operable Equipment" the column lists the quantity of items supplied for the initial operation of the equipment. Under "Running Spares and Accessories" the quantities listed are those issued initially with the equipment as spare parts. The quantities are authorized to be kept on

hand by the operator for maintenance of the equipment.

(7) *Illustration.* The illustration columns refer to either the diagrams or illustrations in which the item appears. References appearing in the Item No. Column are a combination of signs or symbols used for identification of the items appearing in illustrations or schematic diagrams shown in this manual, supplemental circuit labels, or technical bulletins.

2. Abbreviations

accom	accommodate (s) (ing)
amp	ampere
AWG	American Wire Gauge
blk	black
cond	conductor (s)
cyc	cycle(s)
cyl	cylinder (s)
fl	focal length
freq	frequency (ies)
kc	kilocycle (s)
mc	megacycle (s)
min	minimum
mtd	mounted
mtg	mounting
mts	mounts
od	outside diameter
ph	phase
term	terminal (s)
tol	tolerance
v	volt
w	watt (s)

3. Contents

The major items of Radio Set AN/TRC-47 appear in the following sequence:

Radio Set AN/TRC-47
 Converter Telephone, Signal CV-542/TRC-47
 Receiver, Radio R-748/TRC-47
 Transmitter, Radio T-593/TRC-47

4. Comments or Suggestions

Any comments concerning omissions and discrepancies in this manual will be prepared on DA Form 2028 and forwarded direct to Commanding Officer, U. S. Army Signal Equipment Support Agency, Fort Monmouth, N. J., ATTN: SIGFM/ES-ML.

See C1 for new g... SEE CAR 4 C1 Section II. OPERATOR MAINTENANCE REPAIR PARTS AND SPECIAL TOOLS LIST

(1) Federal or technical service stock No.	(2) Designation by model	(3) Description	(4) Unit of issue	(5) Expend- ability	(6) Quantity authorized	(7) Illustration	
						Figure No.	Item No.
		RADIO SET AN/TRC-47					
		ITEMS COMPRISING AN OPERABLE EQUIPMENT					
5820-511-4269		RADIO SET AN/TRC-47: 132 to 150 mc range, 1 channel; 115 v or 230 v, 50-400 cyc; single phase.	ea	NX			
5820-511-4249		ANTENNA AS-813/TRC-47: reflector-corner, style 11, Ref dwg group 11; 132 to 150 mc freq range; pole mtd.	ea	NX	2	2	
5820-646-4799		CABINET, ELECTRICAL EQUIPMENT CY-2126/TRC-47: steel; 22½ in. w x 14¾ in. lg x 21¼ in. h; Varo Mfg Co No. 15592.	ea	NX	1	2	
5995-564-9690		CABLE ASSEMBLY, SPECIAL PURPOSE CX-4065/TRC-47: 25 in. lg o/a.	ea	X	1	2	
5995-542-6008		CABLE ASSEMBLY, RF CG-1222A/U: uses RG-8A/U cable; 50 ft lg o/a.	ea	X	4	2	
5995-521-0309		CABLE ASSEMBLY, RF CG-55B/U: uses cable RG-8A/U; 150 ft lg.	ea	X	2	2	
5805-563-1888		CONVERTER, TELEPHONE SIGNAL CV-542/TRC-47: ring down signal; 60 to 400 cyc; single ph; 5¼ in. h x 14½ in. d x 19 in. w o/a.	ea	NX	1	2	
5820-503-1395		RECEIVER, RADIO R-748/TRC-47; R-748A/TRC-47: 182 to 150 mc; single channel; 115-230 v, 50 to 400 cyc; single ph; 14½ in. d x 19 in. w x 5¼ in. h.	ea	NX	1	2	
5820-697-6797		TRANSMITTER, RADIO T-593/TRC-47; T-593A/TRC-47: 132 to 150 mc; 115-230 v, 50-400 cyc; single ph; 14½ in. d x 19 in. w x 5¼ in. h.	ea	NX	1	2	
		CONVERTER, TELEPHONE SIGNAL CV-542/TRC-47					
5805-563-1888		CONVERTER, TELEPHONE SIGNAL CV-542/TRC-47: ring down signal; 60 to 400 cyc; single ph; 5¼ in. h x 14½ in. d x 19 in. w o/a.	ea	NX			
5995-553-7596		CABLE ASSEMBLY, POWER, ELECTRICAL: 2 cond No. 16 AWG 500 v w; 6 ft o/a lg; Varo No. 15863.	ea	X	1	2	
5920-553-2583		CAP, ELECTRICAL, FUSEHOLDER: blk; ⅝ in. dia. x ⅞ in. lg o/a; Bussman No. HKP-HQR.	ea	X	1	5	XFIB
5960-237-6917		ELECTRON TUBE: MIL type JAN 5725/6AS6W	ea	X	1		V1
5960-262-0167		ELECTRON TUBE: MIL type JAN 12AT7WA	ea	X	3		V2 V3 V5
5960-188-3551		ELECTRON TUBE: MIL type JAN 6AK6	ea	X	1		V4
5960-166-7648		ELECTRON TUBE: MIL type JAN OB2	ea	X	1		V6
5960-188-3564		ELECTRON TUBE: MIL type JAN OA2	ea	X	2		V7 V8

5960-188-0880	ELECTRON TUBE: MIL type JAN 6X4W-----	ea	X	3	V9 V10 V11
5920-636-3047	FUSE: 1 amp, 250 v; type No. MS90079-24-----	ea	X	1	F1
6240-155-8706	LAMP, INCANDESCENT: 6 to 8 v; min bayonet 2 term; clear, T-3¼; GE No. 47.	ea	X	1	DS1
6240-143-3063	LAMP, INCANDESCENT: 120 v, 6 w; clear; 1¼ in. max lg o/a; GE No. 6S6DC.	ea	X	1	RT1
5960-262-0015	SHIELD, ELECTRON TUBE: 7 pin min; JAN type TS102U01.	ea	X	1	EV1
5960-264-3004	SHIELD, ELECTRON TUBE: 9 pin min; JAN type TS103U02.	ea	X	3	EV2 EV3 EV5
5960-272-9094	SHIELD, ELECTRON TUBE: 7 pin min; JAN type TS102U02.	ea	X	2	EV4 EK4
5960-295-7652	SHIELD, ELECTRON TUBE: 7 pin min; JAN type TS102U03.	ea	X	6	EV6 EV7 EV8 EV9 EV10 EV11
5820-503-1395	RECEIVER RADIO R-748/TRC-47; R-748A/TRC-47 Model Column 1 refers to R-748/TRC-47, Column 2 refers to R-748A/TRC-47.	ea	NX	2	
5995-542-6283	RECEIVER RADIO R-748/TRC-47; R-748A/TRC-47: 132 to 150 mc; single channel; 115-230 v, 50-400 cyc; single ph; 14½ in. d x 19 in. w x 5¼ in. h. CABLE ASSEMBLY, POWER ELECTRICAL: 36 in. lg o/a; Varo Mfg Co. No. 15864.	ea	X	1	W2
5955-129-8799	CRYSTAL UNIT, QUARTZ, CR-18/U----- CRYSTAL UNIT QUARTZ: Crystal Unit CR-18/U incl xtal plate; 6425 kc ±0.005% tol freq; 49/64 in. lg x 3/4 in. w x 11/32 in. d.	ea ea	NX NX	1 1	Y1 Y2
5960-262-1357	ELECTRON TUBE: MIL type No. 5654/6AK5W-----	ea	X	4	V1 V2 V3 V4
5960-262-0167	ELECTRON TUBE: MIL type 12AT7WA-----	ea	X	1	V5
5960-264-2089	ELECTRON TUBE: MIL type 5749/6BA6W-----	ea	X	2	V6 V7
5960-228-3764	ELECTRON TUBE: MIL type 6J6W-----	ea	X	2	V8 V10
5960-248-3089	ELECTRON TUBE: MIL type 6005/6AQ5W-----	ea	X	1	V9
5960-166-7664	ELECTRON TUBE: MIL type 12AX7-----	ea	X	1	V11
5960-262-3763	ELECTRON TUBE: MIL type OB2WA-----	ea	X	2	V12 V13
5960-188-0943	ELECTRON TUBE: MIL type JAN 6AX5GT-----	ea	X	1	V14
5920-636-3047	FUSE CARTRIDGE: 1 amp; 250 v slow acting; MIL FO2G1R00B.	ea	X	1	F1

See C7 for
new p. 28

Sec 22

(1) Federal or technical service stock No.	(2) Designation by model	(3) Description	(4) Unit of issue	(5) Expend- ability	(6) Quantity authorized	(7) Illustration	
						Figure No.	Item No.
		RECEIVER RADIO R-748/TRC-47; R-748A/TRC-47—Continued					
6240-155-8706	†	LAMP, INCANDESCENT: miniature bayonet base; 6-8 v type 47 per Fed. Spec W-L-116.	ea	X	3		DS1 DS2 DS3
6240-019-3146	†	LAMP, INDICATOR: 6-8 v, 15 amp; miniature screw base; T-3¼ clear; 1⅜ in. lg Mazda No. 40.	ea	X	3	4	DS1 DS2 DS3
6210-500-4024	†	LIGHT, INDICATOR: aecom min screw T-3¼ bulb; 1½ in. lg x ⅞ in. w x 1½ in. h; Drake Mfg No. 20S.	ea	X	3	4	XDS1A XDS2A XDS3A E3 E4 E5 E6 E7 E13
5960-262-0015	†	SHIELD, ELECTRON TUBE: cylindrical; open top; 1⅜ in. lg x 0.930 in. dia; bayonet mtg; JAN type TS102U01.	ea	X	4		E8 E9 E10 E15 E11 E12 E14 E16
5960-264-3004	†	SHIELD, ELECTRON TUBE: cyl shape, open top; 1⅜ in. lg x 1.050 in. dia; mts on socket fl; JAN type TS103U02.	ea	X	2		
5960-272-9094	†	SHIELD, ELECTRON TUBE: straight cyl, open top; 1¼ in. x 0.950 in; spring mtd; JAN type TS102U02.	ea	X	4		
5960-295-7652	†	SHIELD, ELECTRON TUBE: cyl, open top; bayonet mtg; 0.930 in. od x 2¼ in. h; JAN type TS102U03.	ea	X	3		
5935-502-9369	†	SHIELD, ELECTRON TUBE SOCKET: rectangular; 1½ in. lg x ¼ in. w x 1⅜ in. h; foot bracket mtd; EF Johnson No. 133-280.	ea	X	1		
		TRANSMITTER, RADIO T-593/TRC-47; T-593A/TRC-47					
5820-697-9797		Model Column 1 refers to T-593/TRC-47; Column 2 refers to T-593A/TRC-47. TRANSMITTER, RADIO T-593/TRC-47; T-593A/ TRC-47; 132 to 150 mc freq; 7 w output; 115-230 v, 50- 400 cyc; 14½ in. d x 19 in. w x 5¼ in. h; Varo Mfg No. S231D.	ea	NX		2	
5995-542-6283	†	CABLE ASSEMBLY, POWER, ELECTRICAL: 3 ft o/a lg incl term; 1st end Belden Connector H-1289; 2d end Plug UP120M; Varo Mfg No. 15864.	ea	X	1	2	W2
		Note. The Crystal Unit will be requisitioned in the quantities and frequencies as authorized by the Army Commander or Theater of Operations Commander.					
5960-188-8569	†	CRYSTAL UNIT, QUARTZ CR-18/U	ea	NX	1		V4
5960-188-3915	†	ELECTRON TUBE: MIL JAN type 2E26	ea	X	1		V3
	†	ELECTRON TUBE: MIL type JAN 5763	ea	X	1		

5960-262-1703
5960-188-3551
5960-262-0161
5960-166-7663
5960-166-7664
5960-262-0964
5920-228-7882

5920-510-7611

6240-155-8706

6210-542-6354

5960-264-3004

5960-272-9094

5960-265-0573

5960-646-4617

5960-295-7652

5960-237-6917

5960-262-0167

5960-188-3551

5960-166-7648

5960-188-3564

5960-188-0880

5920-636-3047

6240-155-8706

6240-143-3063

ELECTRON TUBE: MIL type JAN 5R4WG	ea	X	1	V6
ELECTRON TUBE: MIL type JAN 6AK6	ea	X	1	V2
ELECTRON TUBE: MIL type JAN 6L6WGB	ea	X	2	V8 V9
ELECTRON TUBE: MIL type JAN 12AU7	ea	X	2	V1 V5
ELECTRON TUBE: MIL type JAN 12AX7	ea	X	1	V10
ELECTRON TUBE: MIL type JAN OA2WA	ea	X	1	V7
FUSE, CARTRIDGE: 2 amp, 250 v; ferrule term, glass body; 1 1/4 in. x 1/4 in. dia; MIL-F-15160C type FO2D2ROOB.	ea	X	1	F1
FUSE, CARTRIDGE: 2 amp, 125 v; 1/4 in. dia x 1 1/4 in. lg; Spec MIL-F-15160 type FO2D2ROOB.	ea	X	1	F1
LAMP, INDICATOR: 6-8 v, 15 amp; bayonet base; bulb T-3 1/4 clear; Mazda No. 47.	ea	X	2	DS1 DS2
LIGHT, INDICATOR: bayonet base; miniature, red jewel, type No. MS90285; LH50BR2.	ea	X	1	XDS2
SHIELD, ELECTRON TUBE: cyl shape, open top; 1 15/16 in. lg x 1.050 in. dia; mts on socket fl; JAN type TS103U02.	ea	X	3	E4 E7 E9
SHIELD, ELECTRON TUBE: straight cyl, open top; 1 3/4 in. x 0.950 in; spring mtd; JAN type TS102U02.	ea	X	1	E5
SHIELD, ELECTRON TUBE: straight cyl w/flared end; 2 3/8 in. lg x 0.978 in. dia; JAN type TS103U03.	ea	X	1	E6
SHIELD, ELECTRON TUBE: straight cyl, open top; 2 3/8 in. lg x 1 in. dia o/a; black; International Electronic Corp part No. TR6 6025.	ea	X	1	E6
SHIELD, ELECTRON TUBE: JAN type TS102U03	ea	X	1	E8
RUNNING SPARES AND ACCESSORY ITEMS				
CONVERTER, TELEPHONE, SIGNAL CV 542/TRC-47				
ELECTRON TUBE: MIL type JAN 5725/6AS6W	ea	X	1	V1
ELECTRON TUBE: MIL type JAN 12AT7WA	ea	X	1	V2 V3 V5
ELECTRON TUBE: MIL type JAN 6AK6	ea	X	1	V4
ELECTRON TUBE: MIL type JAN OB2	ea	X	1	V6
ELECTRON TUBE: MIL type JAN OA2	ea	X	1	V7 V8
ELECTRON TUBE: MIL type JAN 6X4W	ea	X	1	V9 V10
FUSE: 1 amp, 250 v; type No. MS90079 24	ea	X	5	V11
LAMP, INCANDESCENT: 6 to 8 v; min bayonet 2 term; clear, T-3 1/4; GE No. 47.	ea	X	1	F1
LAMP, INCANDESCENT: 120 v, 6 w; clear; 1 3/4 in. max lg o/a; GE No. 6S6DC.	ea	X	1	DS1
	ea	X	1	RT1

see C-2

(1) Federal or technical service stock No.	(2) Designation by model	(3) Description	(4) Unit of issue	(5) Expend- ability	(6) Quantity authorized	(7) Illustration	
						Figure No.	Item No.
5960-262-1357	+	RECEIVER RADIO R-748/TRC-47; R-748A/TRC-47 Model Column 1 refers to R-748/TRC-47; Column 2 refers to R-748A/TRC-47.	ea	X	2		V1 V2 V3 V4 V5
5960-262-0167	+	ELECTRON TUBE: MIL type 12AT7WA	ea	X	1		V6 V7 V8 V10 V9
5960-264-2089	+	ELECTRON TUBE: MIL type 5749/6BA6W	ea	X	1		V11
5960-228-3764	+	ELECTRON TUBE: MIL type 6J6W	ea	X	1		V12 V13 V14
5960-248-3089	+	ELECTRON TUBE: MIL type 6005/6AQ5W	ea	X	1		F1
5960-166-7664	+	ELECTRON TUBE: MIL type 12AX7	ea	X	1		DS1 DS2 DS3
5960-262-3763	+	ELECTRON TUBE: MIL type OB2WA	ea	X	1		DS1 DS2 DS3
5960-188-0943	+	ELECTRON TUBE: MIL type JAN 6AX5GT	ea	X	1		XDS1A XDS2A XDS3A
5920-636-3047	+	FUSE CARTRIDGE: 1 amp; 250 v slow acting; MIL FO2G1ROOB.	ea	X	5		
6240-155-8706	+	LAMP, INCANDESCENT: miniature bayonet base; 6-8 v type No. 47 per Fed Spec No. W-L-116.	ea	X	2		
6240-019-3146	+	LAMP, INDICATOR: 6-8 v, 15 amp; miniature screw base; T-3 1/4 clear; 1 3/8 in. lg; Mazda No. 40.	ea	X	2	4	
6210-500-4024	+	LIGHT, INDICATOR: accom min screw T-3 1/4 bulb; 1 1/2 in. lg x 7/8 in. w x 1 1/2 in. h; Drake Mfg No. 20S.	ea	X	2	4	
		TRANSMITTER, RADIO T-593/TRC-47; T-593A/TRC-47					
5960-188-8569	1	Model Column 1 refers to T-593/TRC-47; Column 2 refers to T-593A/TRC-47.	ea	X	1		V4 V3 V6 V2 V8 V9 V1 V5 V10 V7 F1
5960-188-3915	+	ELECTRON TUBE: MIL type JAN 2E26	ea	X	1		
5960-262-1703	+	ELECTRON TUBE: MIL type JAN 5763	ea	X	1		
5960-188-3551	+	ELECTRON TUBE: MIL type JAN 5R4WGA	ea	X	1		
5960-262-0161	+	ELECTRON TUBE: MIL type JAN 6AK6	ea	X	1		
5960-166-7663	+	ELECTRON TUBE: MIL type JAN 6L6WGB	ea	X	1		
5960-166-7664	+	ELECTRON TUBE: MIL type JAN 12AU7	ea	X	1		
5960-262-0964	+	ELECTRON TUBE: MIL type JAN 12AX7	ea	X	1		
5920-228-7882	+	ELECTRON TUBE: MIL type JAN OA2WA	ea	X	1		
		FUSE, CARTRIDGE: 2 amp, 250 v; ferrule term, glass body; 1 1/4 in. x 1/4 in. dia; MIL-F-15160C type FO2D2ROOB.	ea	X	5		
5920-510-7611	+	FUSE, CARTRIDGE: 2 amp, 125 v; 1/4 in. dia x 1 1/4 in. lg; Spec MIL-F-15160 type FO2D2ROOB.	ea	X	5		F1
6240-155-8706	+	LAMP, INDICATOR: 6-8 v, 15 amp; bayonet base; bulb T-3 1/4 clear; Mazda No. 47.	ea	X	1		DS1 DS2

By Order of *Wilber M. Brucker*, Secretary of the Army:

MAXWELL D. TAYLOR,
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Chief of Staff.

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11-7
11-16
11-57
11-127
11-128
11-500 (AA-AE)
11-557
11-587
11-592
11-597
44-145
44-147
44-445
44-447

NG: State AG; units—same as Active Army.

USAR: None.

For explanation of abbreviations used, see AR 320-50.

ch. 1 Posted

TM 11-212-20

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

5820-504-1093 FSN

*w/changes C1
C2*

RADIO SET AN/TRC-47

ORGANIZATIONAL MAINTENANCE



HEADQUARTERS, DEPARTMENT OF THE ARMY
MAY 1958

WARNING

DANGEROUS VOLTAGES EXIST IN THIS EQUIPMENT

Be careful when working on the 115-volt ac line connections. Serious injury or death may result from contact with these terminals.

TECHNICAL MANUAL

RADIO SET AN/TRC-47

Organizational Maintenance

TM 11-212-20 }
CHANGE No. 2 }

HEADQUARTERS,
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 16 September 1963

TM 11-212-20, 21 May 1958, is changed as follows:

Page 2, paragraph 1 (as changed by C 1, 28 Aug 61). Delete subparagraph *g*.

Add paragraph 1.1 after paragraph 1.

1.1.1 Index of Publications

Refer to the latest issue of DA Pam 310-4 to determine whether there are new editions, changes, or additional publications pertaining to the equipment. DA Pam 310-4 is an index of current technical manuals, technical bulletins, supply bulletins, lubrication orders, and modification work orders available through publications supply channels. The index lists the individual parts (-10, -20, -35P, etc) and the latest changes to and revisions of each equipment publication.

Delete paragraph 2 and substitute:

2. Forms and Records

a. Reports of Maintenance and Unsatisfactory Equipment. Use equipment forms and records in accordance with instructions in TM 38-750.

b. Report of Damaged or Improper Shipment. Fill out and forward DD Form 6 (Report of Damaged or Improper Shipment) as prescribed in AR 700-58 (Army), NAVSANDA Publication 378 (Navy), and AFR 71-4 (Air Force).

c. Reporting of Equipment Manual Improvements. The direct reporting by the individual user of errors, omissions, and recommendations for improving this manual is authorized and encouraged. DA Form 2028 (Recommended Changes to DA Technical Manual Parts Lists or Supply Manual 7, 8, or 9) will be used for reporting these improve-

ments. This form will be completed in triplicate using pencil, pen or typewriter. The original and one copy will be forwarded direct to: Commanding Officer, U.S. Army Electronics Materiel Support Agency, ATTN: SELMS-MP, Fort Monmouth, N.J. 07703. One information copy will be furnished to the individual's immediate supervisor (e.g., officer, noncommissioned officer, supervisor, etc).

→ Page 3, paragraph 3, line 1. Change "appendix" to: Appendix II.

Paragraph 4 (as changed by C 1, 28 Aug 61).

Change "TM 11-212-20P" to: TM 11-5820-361-20P.

Delete paragraph 5 and substitute:

5. Preventive Maintenance

a. Preventive maintenance is the systematic care, inspection, and servicing of equipment to maintain it in serviceable condition, prevent breakdowns, and assure maximum operational capability. Preventive maintenance is the responsibility of all echelons concerned with the equipment and includes the inspection, testing, and repair or replacement of parts, subassemblies, or units that inspection and tests indicate probably would fail before the next scheduled periodic service. Preventive maintenance service and inspections of Radio Set AN/TRC-47 at the second echelon level are made at quarterly intervals unless otherwise directed by the commanding officer.

b. Maintenance forms and records to be used and maintained on this equipment are specified in TM 38-750.

Add paragraphs 5.1 and 5.2 after paragraph 5.

5.1.1 Quarterly Maintenance

Quarterly preventive maintenance checks and services on Radio Set AN/TRC-47 are required.

* This change supersedes C 1, 28 August 1961.

Periodic daily services (TM 11-212-10) constitute a part of the quarterly maintenance checks and services and must be performed concurrently. All deficiencies and shortcomings will be recorded in

accordance with the requirements of TM 38-750. Perform all checks and services listed in the quarterly maintenance checks and services chart (par. 5.2) in the sequence listed.

5.2 Quarterly Preventive Maintenance Checks and Services Chart

Sequence No.	Item	Procedure	References
1	Completeness	See that the equipment is complete.	Appx. II, TM 11-212-10.
2	Publications	See that all publications are complete, serviceable and current.	DA PAM 310-4.
3	Modifications	Determine whether new applicable MWO's have been published. All URGENT MWO's must be applied immediately; all NORMAL MWO's must be scheduled.	DA PAM 310-4 and TM 38-750.
4	Preservation	Check all surfaces for evidence of fungus. Remove rust with fine sandpaper. Brush two thin coats of paint on the bare metal.	TM 9-213.
5	Loose components	Inspect knobs, switches, receptacles, transformers, pilot lamps, and connectors for looseness.	
6	Pluckout items	Inspect seating of tubes, pilot lamps, fuses, and crystals for proper seating.	
7	Relay	Inspect the relay for loose mountings, bad contacts, and misalignment of springs.	
8	Resistors	Inspect resistors for cracks, chipping, discoloration, and blistering.	
9	Terminal blocks	Inspect terminal blocks for cracks, loose connections, and breaks.	
10	Capacitors	Inspect capacitors for dirt and corrosion.	
11	Transformers	Inspect transformers for overheating.	

Page 4 and 5 (as changed by C 1, 28 Aug 61). Delete figure 1.

Page 6, paragraph 8c, step 1, action column (as changed by C 1, 28 Aug 61). After the last sentence, add: Check the cable connections between connector J6, on the converter, and the ventilating fan.

Page 7, step 5, normal indication column (as changed by C 1, 28 Aug 61).

Add: The ventilating fan starts.

Corrective measures column (as changed by C 1, 28 Aug 61). After "power cable" add: and the ventilating fan cable.

Page 8, step 8 (as changed by C 1, 28 Aug 61). Delete the information in the action and normal indication columns and substitute:

Action	Normal indication
Place the METER SWITCH in the following positions:	Normal readings for 1-watt output:
OSC IG	Between .35 and .5 ma.
OSC IK	Between .45 and .6 ma.
1 TRIP IG	Between .35 and .6 ma.
1 TRIP IK	Between .3 and .6 ma.
2 TRIP IG	Between .4 and .6 ma.
2 TRIP IK	Between .35 and .6 ma.
DRIVER IG	Between .3 and .6 ma.
DRIVER IK	Between .35 and .65 ma.
PA IG	Between .3 and .6 ma.
PA IP	Between .3 and .85 ma.
MOD IK	Between .5 and .8 ma.

Step 9, normal indication column, line 6. Delete: and 20 cps ringing current is fed out of converter and activates line signal on panel of local switchboard.

Page 17. Designate the existing appendix: APPENDIX II. Insert APPENDIX I before APPENDIX II.

APPENDIX I

REFERENCES

Following is a list of references available to the organizational repairman of the AN/TRC-47:

DA Pam 310-4	Index of Technical Manuals, Technical Bulletins, Supply Bulletins, Lubrication Orders, and Modification Work Orders.
TM 9-213	Painting Instructions for Field Use.
TM 11-212-10	Radio Set AN/TRC-47, Operator's Manual.
TM 11-5820-361-20P	Organizational Maintenance Repair Parts and Special Tools List, Radio Set AN/TRC-47.
TM 11-6625-203-12	Operation and Organizational Maintenance, Multimeter AN/URM-105, Including Multimeter ME-77/U.
TM 11-6625-274-12	Operator's and Organizational Maintenance Manual, Test Sets, Electron Tube TV-7/U, TV-7A/U, TV-7B/U, and TV-7D/U.
TM 38-750	The Army Equipment Records System and Procedures.

By Order of the Secretary of the Army:

Official:

J. C. LAMBERT,
*Major General, United States Army,
The Adjutant General.*

EARLE G. WHEELER,
*General, United States Army,
Chief of Staff.*

Distribution:

To be distributed in accordance with DA Form 12-32, section II (unclas) requirements for Nike-Hercules, Pershing and Nike-Ajax—TM—Radio.

TECHNICAL MANUAL }
No. 11-212-20

HEADQUARTERS,
DEPARTMENT OF THE ARMY,
WASHINGTON 25, D. C., 21 May 1958

RADIO SET AN/TRC-47

ORGANIZATIONAL MAINTENANCE

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CHAPTER 1

INTRODUCTION

1. Scope

a. This manual covers organizational (second echelon) maintenance of Radio Set AN/TRC-47.

b. The complete instructions for organizational maintenance includes the operator's maintenance manual, TM 11-212-10.

c. TM 11-5083 is applicable to this equipment and is available to the second echelon repairman.

d. The appendix contains the maintenance allocation chart.

e. The repair parts and special tools list will be published separately.

f. Official nomenclature followed by (*) is used to indicate all models of the equipment item covered by this manual. Thus, Electron Tube Test Set TV-7(*)/U represents Electron Tube Test Sets TV-7A/U, TV-7B/U, and TV-7C/U.

g. Forward comments on this manual directly to Commanding Officer, United States Army Signal Publications Agency, Fort Monmouth, N. J.

2. Forms and Records

Refer to TM 11-212-10, Radio Set AN/TRC-47, Operator's Manual, paragraph 2.

*add for 1.1
see change 2*

*add for 2
in change 1,
see change 2*

CHAPTER 2

MAINTENANCE INSTRUCTIONS

Section I. MAINTENANCE

3. Scope of Second Echelon Maintenance *C2*

Refer to the appendix *II* for the scope of second echelon maintenance.

4. Tools, Materials, and Test Equipment Required *TM 11-5820-361-209*

Refer to *TM 11-212-20P* for parts normally stocked for second echelon maintenance. Refer to the appendix of this manual for tools, materials, and test equipment required for second echelon maintenance.

5. Second Echelon Preventive Maintenance

a. *DA Form 11-238*. *DA Form 11-238* (fig. 1) is a preventive maintenance check list to be used by the second echelon repairman. Items not applicable to the equipment are lined out in the figure. References in the ITEM block in the figure are to paragraphs that contain additional maintenance information pertinent to the particular item. Instructions for the use of the form appear on the form.

b. *Items*. The information shown in this

Subparagraph is supplementary to *DA Form 11-238* for Radio Set AN/TRC-47. The item numbers correspond to the ITEM numbers on the form.

Warning: Disconnect all power when it is necessary to perform preventive maintenance operations. When power to the equipment is disconnected, some capacitors still may retain voltage of dangerous potential. Before touching exposed electrical parts, short circuit the part to ground. When maintenance is completed, replace the equipment in its case, reconnect the power, and check for satisfactory operation.

Item	Maintenance procedures
17	Do not align the capacitor plates on the receiver. Perform visual inspection only and if misalignment is apparent, send receiver to a higher echelon for repair.
18	Do not replace parts on the receiver. Send the receiver to higher echelon for repair. Perform visual inspection only.

2) par 5 deleted see C2 page 1

ADDITIONAL ITEMS FOR 2D AND 3D ECHELON INSPECTIONS		CONDITION
26. INSPECT ANTENNA FOR ECCENTRICITIES, CORROSION, LOOSE FIT, DAMAGED INSULATORS AND REFLECTORS.		✓
27. CHECK FOR NORMAL OPERATION.		✓
28. BEFORE SHUTTING DOWN OR STOWING: REMOVE BATTERIES		

IF DEFICIENCIES NOTED ARE NOT CORRECTED DURING THE INSPECTION, INDICATE ACTION TAKEN FOR CORRECTION.

MAINTENANCE CHECK LIST FOR SIGNAL EQUIPMENT SOUND EQUIPMENT, RADIO, DIRECTION FINDING RADAR, CARRIER, RADIOSONDE AND TELEVISION (AR 750-625)		
EQUIPMENT NOMENCLATURE RADIO SET AN/TRC-47		
EQUIPMENT SERIAL NUMBER 00000-00		
INSTRUCTIONS This form may be used for a period of one month by using the correct dates and weeks of the month. It is to be used as a Preventive Maintenance check list for Signal equipment in actual use, or for a check on equipment prior to issue. 1. For detailed Preventive Maintenance instructions see: a. The Technical Manual (in TM 11 series) for the equipment. b. The Supply Bulletin (SB 11-100 series) for the equipment. c. The Department of the Army Lubrication Order. (See DA Pamphlet Number 310-4) 2. The following action will be taken by either the Communications Officer/Chief for 1st echelon, or the Inspector for higher echelon: a. Enter Equipment Nomenclature and Serial Number. b. Strike out items that do not apply to the equipment. 3. Operator/Inspector will enter in the columns entitled CONDITION , on the proper line, a notation regarding the condition, using symbols specified under LEGEND . 4. After operator completes each daily inspection he will initial over the appropriate dates under Monthly Condition for Month , then return form to his supervisor.		
TYPE OF INSPECTION		
OPER- ATOR	2/3 ECH- ELON	DATE
	✓	7 OCT 1967
		SIGNATURE
		<i>John Doe</i>

DA FORM 11-238

REPLACES DA FORMS 11-238, 1 NOV 55; 11-239, 11-244, 11-245, 11-248, 11-249, 11-250, AND 11-251; WHICH ARE OBSOLETE.

Figure 1. DA Form 11-238 (pages 1 and 4).

GPO:1957 O-427034

TM212-20(2)

6. Lubrication

In Radio Set AN/TRC-47, there are no parts that require lubrication.

Section II. TROUBLESHOOTING

7. Visual Inspection

a. When failure is encountered and the cause is not immediately apparent, check as many of the items listed in *b* below as is practicable before starting the operational check of the equipment. If possible, obtain information from the operator of the equipment regarding its performance at the time the trouble occurred.

b. Partial or complete failure of the radio set or indications of improper operation may be caused by one or more of the following faults:

- (1) Improperly connected cords or cables.
- (2) Worn, broken, or disconnected cords or cables.
- (3) Defective fuses.
- (4) Defective indicator lamps.
- (5) Defective, or improper seated tubes.
- (6) Defective, binding, or dirty switches and controls.
- (7) Defective crystals.
- (8) Burned insulation and resistors.

8. Equipment Performance Checklist

a. *General.* The equipment performance checklist is a procedure used to systematically

check equipment performance. All corrective measures which the second echelon repairman can perform are given in the *corrective measures* column. When using the check list, start at the beginning and follow each step in order. If the corrective measures indicated do not fix the equipment, troubleshooting by higher echelon is required. Multimeter ME-77/U will be used to make all voltage and continuity checks. The voltage and continuity checks are included as an aid to isolate the trouble to a particular stage. If voltage and continuity checks isolate the trouble to a particular part where a running spare (TM 11-212-10) is available, the second echelon repairman can replace the defective part; otherwise, the equipment must be forwarded to higher echelon for repair. Note on the repair tag how the equipment performed and what corrective measures were taken. Refer to TM 11-212-10 for the cabling diagram, location of controls, and adjustment of the transmitter for 1 watt output.

b. *Procedure.* Place the set in operation. Allow the equipment to warm up for approximately 5 minutes. Operate the equipment as shown in the checklist below.

c. Equipment Performance Checklist.

	Step	Unit	Action	Normal indication	Corrective measures
PREPARATORY	1	Converter.....	Place the POWER switch in the OFF position. Check the power cable connection between connector J5 on the converter and an ac source.		
	2	Receiver.....	Place the POWER switch in the OFF position. Check the power cable connection between connectors J8 on the converter and J2 on the receiver. Set the squelch switch to SQUELCH position. Turn SENSITIVITY control fully clockwise.		

	Step	Unit	Action	Normal indication	Corrective measures
	3	Transmitter.....	Set the VOLUME control to midposition. Place FIL and PLATE switches in their OFF position. Check the power cable connection between connectors J7 on the converter and J2 on the transmitter. Place the METER SWITCH in the PA Ip position.		
	4	Transmitter.....	Set the FIL switch to ON.	FIL indicator lamp lights.	Make continuity tests of the following items: Transmitter fuse. Indicator lamp. Power cable (par. 10). Use ac voltmeter to check transmitter power input source at J7 on converter (TM 11-212-10).
	5	Converter.....	Set the power ON-OFF switch to ON.	POWER indicator lamp lights.	Make continuity tests of the following items: Converter fuse. Indicator lamp. Power cable (par. 10). Use ac voltmeter to check converter power input source at J5 on the converter (TM 11-212-10).
	6	Receiver.....	Set the power ON-OFF switch to ON (remote transmitter off). Rotate SENSITIVITY control knob counter clockwise until squelch operates (remote transmitter off). Same as above (remote transmitter on).	POWER indicator lamp lights. STDBY lamp is off, REC lamp is on, a rushing noise is heard in the loudspeaker. STDBY lamp is on. REC lamp is off. Rushing noise in speaker is silenced. STDBY lamp is off. REC lamp is on.	Make continuity test on the following items: Receiver fuse. POWER indicator lamp. Power cable (par. 10). Make continuity test on REC lamp filament. Use Electron Tube Test Set TV-7/U and check tubes V9 and V10. Use Electron Tube Test Set TV-7/U and check tube V8.
	7	Transmitter.....	Set the PLATE switch to ON.	Transmitter PLATE indicator lamp lights.	Make continuity tests of the following items: Indicator lamp. Relay K1. PLATE switch.

	Step	Unit	Action	Normal indication	Corrective measures
	8	Transmitter.....	Place the METER SWITCH in the following positions: OSC Ig..... OSC Ik..... 1 TRIP Ig..... 1 TRIP Ik..... 2 TRIP Ig..... 2 TRIP Ik..... DRIVER Ig..... DRIVER Ik..... PA Ig..... PA Ip..... MOD Ik.....	Normal reading for 1 watt output, .42 ma. Normal reading for 1 watt output, .55 ma. Normal reading for 1 watt output, .44 ma. Normal reading for 1 watt output, .32 ma. Normal reading for 1 watt output, .44 ma. Normal reading for 1 watt output, .55 ma. Normal reading for 1 watt output, .37 ma. Normal reading for 1 watt output, .41 ma. Normal reading for 1 watt output, .58 ma. Normal reading for 1 watt output, .24 ma. Normal reading for 1 watt output, .66 ma.	Crystal rectifier. Use Electron Tube Test Set TV-7(*)/U and check tubes V6 and V7. If reading is abnormal, check tube V1A. Check crystal Y1 by substitution or for resistance of a forward to back ratio of 1 to 1. Higher echelon repair required. Check tube V1B. Higher echelon repair required. Check tube V2. Higher echelon repair required. Check tube V3. Higher echelon repair required. Check V4. Higher echelon repair required. Check V8 and V9.
	9	Converter.....	Turn the test switch to RECEIVE. Turn to TRANSMIT position.	800 cps fed to input circuit of hybrid tube. Minimum signal voltage should be present at TP1 and TP2, (and 20 cps ringing current is fed out of converter and activates line signal on panel of local switchboard.) 20 cps ringing current fed to distant switchboard and line signal is activated on panel of distant switchboard.	Use a voltmeter connected in jacks TP 1 and 2 (TM 11-212-10), adjust R4 for minimum reading. If meter does not vary as R4 is turned, check input circuit of V1 (between pin 1 and chassis) in converter for 800 cps signal. If 800 cps is not present at V1 input, check contacts on test switch. In local converter, check cable to transmitter (par. 11). In local transmitter, check antenna cable (par. 11). In receiver at other end of link, check the audio line to switchboard.

	Step	Unit	Action	Normal indication	Corrective measures
STOP	10	Transmitter.....	Set the PLATE and FIL switches to OFF.	Indicator lamps go out; all power is removed from set.	
	11	Receiver.....	Set POWER switch to OFF.	POWER and REC or STDBY indicator lamps go out.	Check switch.
	12	Converter.....	Set POWER switch to OFF.	POWER indicator lamp goes out.	Check switch.

9. Tube Testing Techniques (figs. 2, 3, and 4)

When trouble occurs, check all cabling, connections, and power sources before removing tubes. Try to isolate the trouble to a component or stage. If tube failure is suspected, use the applicable procedure below to check the tubes.

Caution: Do not rock or rotate a tube when removing it from a socket; pull it straight out with a tube puller.

a. Use of Tube Tester. Remove and test one tube at a time. Discard a tube only if its defect is obvious or if the tube tester shows it to be defective. Do not discard a tube that tests at or near its minimum test limit on the tube tester. Put back the original tube, or insert a new one if required, before testing the next one.

b. Single-tube Substitution Method.

(1) Substitute a new tube for one of the suspected original tubes. If the equipment continues to be inoperative, replace the new tube with the original. Similarly, check each original tube suspected, one at a time, until the defective tube is located and the equipment becomes operative. Discard the last original tube removed from the equipment. **DO NOT LEAVE A NEW TUBE IN A SOCKET IF THE EQUIPMENT OPERATES SATISFACTORILY WITH THE ORIGINAL TUBE.**

(2) If the above method of tube substitution does not correct the trouble, try the method described in *c* below.

c. Multitube Substitution Method. Occasionally, two or more tubes are defective. It is then necessary to install new tubes, one at

a time, until the equipment becomes operative. Proceed as follows:

- (1) Remove one of the suspected original tubes. Install a new tube. If the equipment is still inoperative, leave the new tube in place and remove the next suspected tube. Mark the original tubes with the socket number from which they are removed. Continue this procedure until the equipment becomes operative. The last original tube removed is defective and should be discarded.
- (2) To determine whether another original tube is defective, return one of them to its original socket. If there is no noticeable difference in performance, leave the original tube in the equipment. In the same way, return the remaining original tubes to their sockets, one at a time. If failure occurs, or performance suffers, discard the last original tube installed. **DO NOT LEAVE A NEW TUBE IN A SOCKET IF THE EQUIPMENT OPERATES SATISFACTORILY WITH THE ORIGINAL TUBE.**

d. Tune-In for Repair. If none of the procedures outlined above restores the equipment to normal operation, *return the original tubes to their sockets* before forwarding the defective item to a higher echelon for repair.

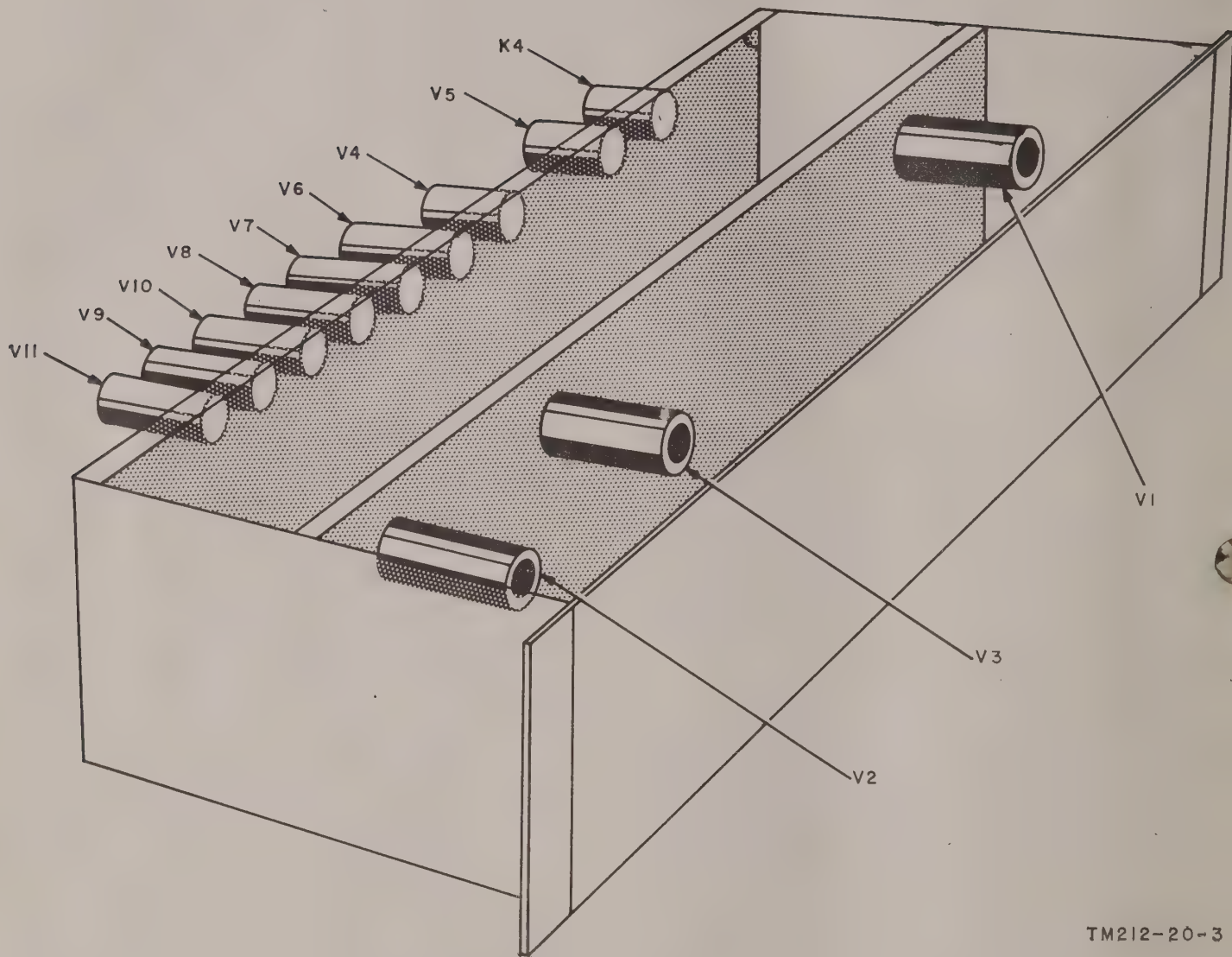
e. Removal of Tubes. To reach the tubes in Radio Set AN/TRC-47, proceed as follows:

- (1) Remove the rear panel of the cabinet.
- (2) Remove the RF shield on the transmitter chassis.
- (3) All tubes in the converter, transmitter, and receiver (figs. 2, 3, and 4) can now be reached easily.

(4) Check tubes in the suspected unit by using the methods described in *a* or *b*

above.

(5) Replace the rear panel of the cabinet.



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Figure 2. Converter tube location chart.

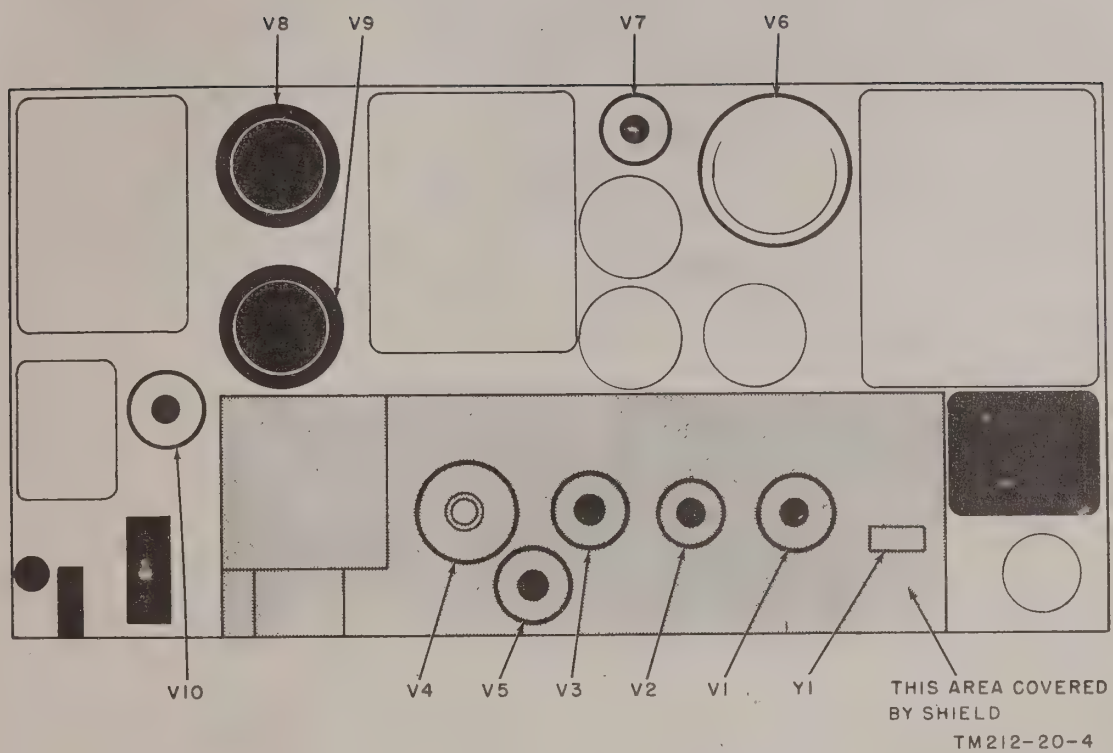
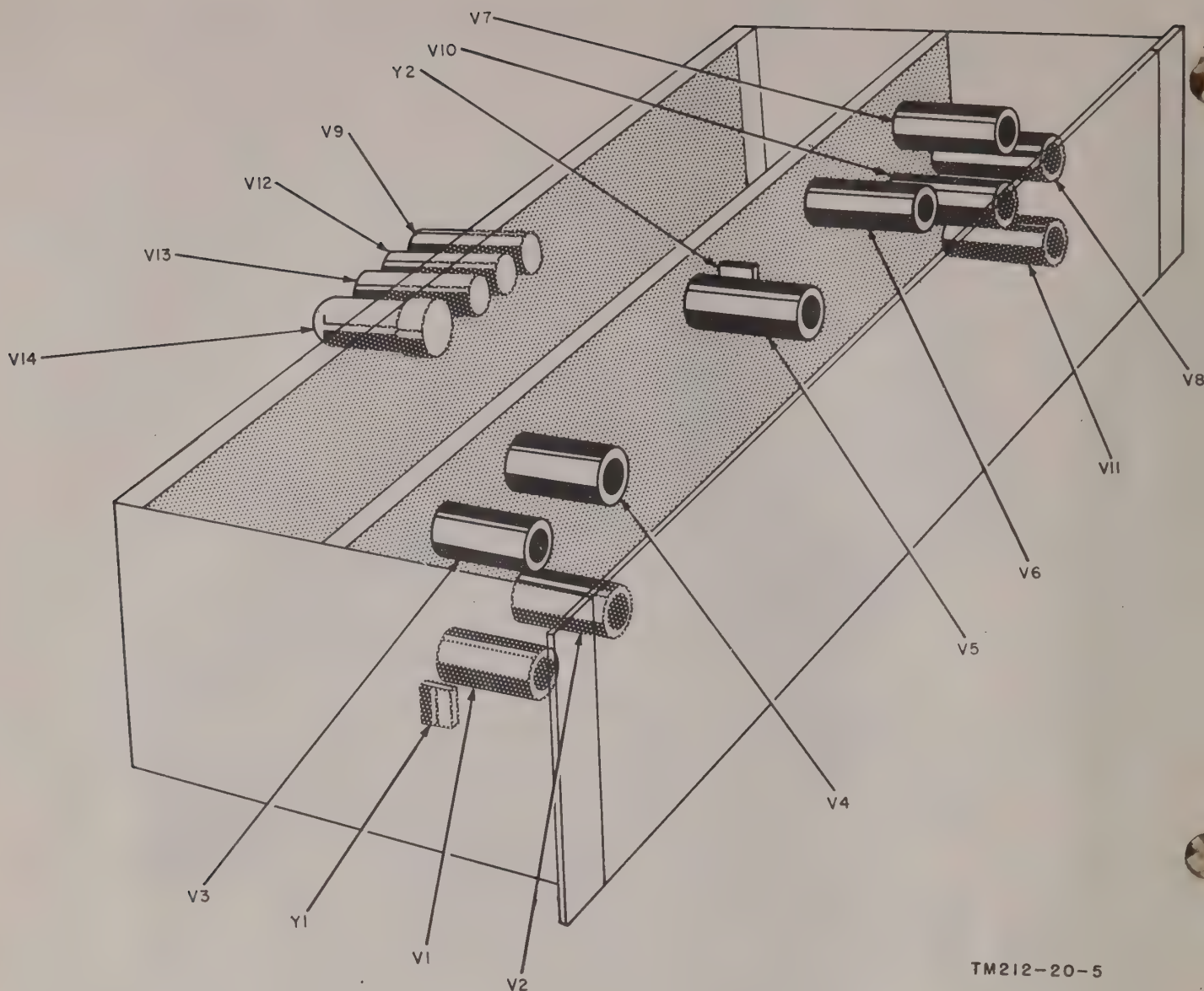


Figure 3. Transmitter tube location chart.



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Figure 4. Receiver tube location chart.

10. Repair of Defective Cords and Cables

a. Cord and cable troubles often occur under conditions of severe vibration where cables are used to connect equipment or when equipment is handled improperly from frequent disconnecting and connecting.

b. The most common cable trouble is breakage of conductors within the cable, usually at the connecting plug. A two-wire power cord used in the equipment is often the source of trouble. The cord frequently becomes frayed and a short circuit occurs, or the wire breaks at the plug. A break is most commonly caused by pulling at the cord to remove the plug instead of pulling at the plug. If the plug is not attached properly, the strain of pulling

on the cord may cause the cord to pull off or break.

c. To replace the plug on a power cord, thread the cord through the hole in the plug and tie the cord in a knot with the insulation intact. This procedure will keep the strain on the knot rather than on the connection. Remove approximately $\frac{1}{2}$ inch of insulation from the end of each conductor. Tin the ends of the wires with a soldering iron before they are attached to the plug. The tinning will form a solid mass at the ends and eliminate loose ends which may cause short circuits. Wrap each wire (in a clockwise direction) around a screw. When the screw is tightened the wire will be pulled tight in the same direction as the screw.

d. In multiconductor cables, the most common trouble is a broken or open conductor at the connector terminal. To make this repair, disassemble the connector and remove the broken end from the terminal while heating the terminal with a soldering iron. If the remaining wire is too short to reach the terminal, splice and solder a piece to it as an extension. Proceed as follows:

(1) Slip a piece of spaghetti tubing over the wire before the splice is made. After splicing and soldering slide the spaghetti tubing over the joint. Solder the other end of the extension to the proper terminal. If necessary, clean out the excess solder from the terminal by heating it with a soldering iron. Shake the old solder out while it is still hot.

(2) All the conductors should be inspected because if one is broken, others may be broken, or near the breaking point. If others are badly worn or damaged, cut out the damaged part or replace the cable.

e. If two conductors short together inside the cable and it is not practical to open the

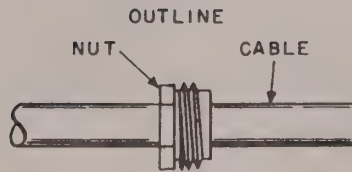
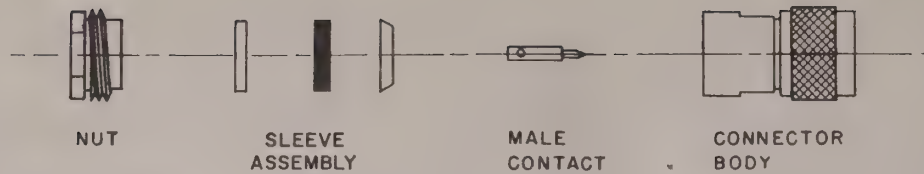
cable, as in the case of one with a heavy rubber covering, replace the cable.

11. Repairing Shielded Cables

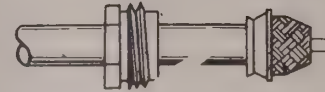
a. Shielded cables are repaired the same as unshielded cables. Shielding keeps magnetic fields from causing radiation interference from reaching the conductors. It is therefore important to reconnect the shield if it has been disconnected.

b. When shielded cable is used, make the shield connection shorter than any other connection, so that the shield will prevent the conductors from breaking when any strain is put on the cable.

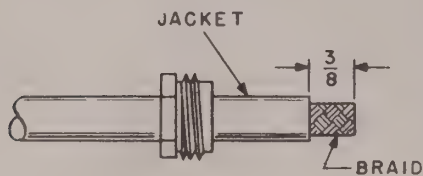
c. To replace a plug on a coaxial cable, follow the step-by-step procedure shown in figure 5. Take special care in cutting off the insulation. While cutting the insulation at right angles to the conductors as shown in figure 5, there is danger of nicking the conductor; which will make it weak at that point and cause it to break easily. If possible, cut the insulation at an angle, and there will be less danger of nicking the wire.



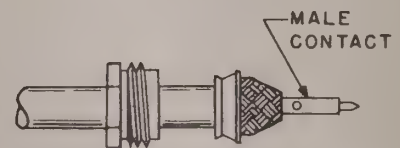
1. CUT OFF SHARP



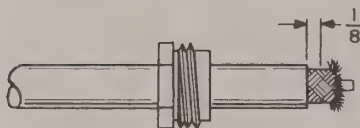
6. WITH SLEEVE IN PLACE, FOLD BACK BRAID SMOOTH AS SHOWN.



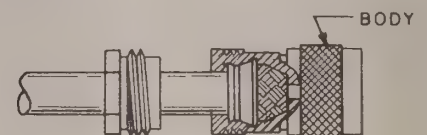
2. CUT OFF JACKET $\frac{3}{8}$ INCH FROM END; BE CAREFUL NOT TO NICK BRAID.



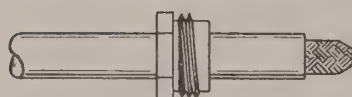
7. TIN INSIDE HOLE OF MALE CONTACT, TIN CENTER CONDUCTOR OF COAXIAL CABLE, SLIP MALE CONTACT IN PLACE AND SOLDER; REMOVE EXCESS SOLDER. BE SURE CABLE DIELECTRIC IS NOT HEATED EXCESSIVELY.



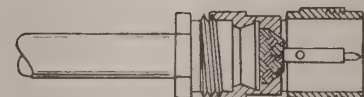
3. CUT OFF INNER INSULATION UNDER BRAID $\frac{1}{8}$ INCH FROM END OF JACKET; BE CAREFUL NOT TO NICK INNER CONDUCTOR.



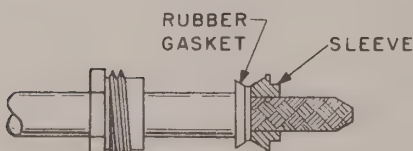
8. PUSH INTO BODY AS FAR AS IT WILL GO, THEN SLIDE NUT INTO BODY AND SCREW INTO PLACE, WITH WRENCH, UNTIL MODERATELY TIGHT.



4. TAPER BRAID.



9. FINAL ASSEMBLY SHOWN IN SECTION.



5. SLIDE RUBBER GASKET AND SLEEVE OVER TAPERED BRAID TO FIT TIGHT AGAINST JACKET. BE SURE INNER SHOULDER OF SLEEVE FITS SQUARELY AGAINST END OF CABLE JACKET.

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Figure 5. Attaching plug to coaxial cable.

CHAPTER 3

SHIPMENT AND LIMITED STORAGE

12. Disassembly of Equipment

The following instructions are recommended as a guide for preparing Radio Set AN/TRC-47 for shipment and storage:

a. Removal of Cables.

- (1) Remove the rear cover of the cabinet after removing the screws.
- (2) Disconnect the telephone line and wind the line on a reel.
- (3) Disconnect all cables and cords from the three units.

b. Removal of Units.

- (1) Lay the cabinet on its back (front panels of converter, transmitter, and receiver facing upward).
- (2) Remove the mounting screws.
- (3) Remove the units, individually, from the cabinet.

c. Removal of Antennas.

- (1) Remove the clamps which fasten the antennas to their respective poles and lower the antennas.
- (2) Remove the antenna cables and then coil the cables.
- (3) Disassemble the antennas by removing the antenna mounting hardware.
- (4) Wrap the reflector rods with a strap.
- (5) Place the radiators in a carton or container.
- (6) Place all hardware and mounting brackets in cartons.

13. Repackaging for Shipment or Limited Storage

The exact procedure for repackaging depends upon the material available and the conditions under which the equipment is shipped or stored. Adapt the procedures outlined below whenever possible. The information concerning the original packaging (TM 11-212-10) will also be helpful.

a. *Material Requirements.* The following materials are required for packaging Radio Set AN/TRC-47. For stock numbers of materials, consult SB 38-100, Preservation, Packaging and Packing Materials, Supplies and Equipment Used in the Army.

Material	Quantity
Gummed tape	12 ft.
Waterproof barrier material	110 sq. ft.
Waterproof tape	32 ft.
Corrugated fiberboard, single-face	160 sq. ft.
Strapping steel	70 ft.
Wooden shipping boxes	3
Pressure-sensitive tape	

b. *Packaging.* Package Radio Set AN/TRC-47 in accordance with procedures specified in the following subparagraphs:

- (1) *Technical manual.* Inclose each technical manual within a close-fitting bag of waterproof barrier material. Seal seams with waterproof, pressure-sensitive tape.
- (2) *Radio Transmitter T-593(*)/TRC-47.* Cushion the radio transmitter on all surfaces with pads and flexible corrugated fiberboard. Secure the cushioning with gummed paper tape. Inclose within a wrap of single-face, flexible, corrugated fiberboard and secure the wrap with waterproof, pressure-sensitive tape.
- (3) *Radio Receiver R-748(*)TRC-47.* Package the radio receiver by following the procedures in (2) above.
- (4) *Telephone Signal Converter CV-542 TRC-47.* Package the telephone signal converter by following the procedures in (2) above.
- (5) *Cables.* Cushion each item individually by wrapping it in flexible, single-face, corrugated fiberboard. Secure the cushioning with gummed paper tape.
- (6) *Spare parts.* Wrap these items (listed in TM11-212-10) in flexible, single-face, corrugated fiberboard. Place in a carton or box and cushion with gummed paper tape.
- (7) *Electrical Equipment Cabinet CY-2126/TRC-47.* Place the items packaged as specified in (5) and (6) above

within the cabinet and secure them to the cabinet to prevent movement during transit.

- (8) *Antenna AS-813/TRC-47.* Cushion each antenna by wrapping it in flexible, single-face, corrugated fiberboard. Secure the wrap with waterproof, pressure-sensitive tape.

c. Packing. Pack Radio Set AN/TRC-47 in accordance with procedures specified in the following subparagraphs; build all boxes so that the contents fit snugly.

- (1) Fit sealed waterproof case liners in each shipping container.
- (2) Place Radio Transmitter T-593(*)/TRC-47, Radio Receiver R-748(*)/TRC-47, and Telephone Signal Converter CV-542/TRC-47 (packaged as specified in *b(2)-(4)* above) together in a nailed wooden box.
- (3) Place Electrical Equipment Cabinet CY-2126/TRC-47, with contents packaged as specified in *b(5)* through *b(7)* above, in a nailed wooden box. Secure the technical manual packaged

as specified in *b(1)* above, between contents and lid of the box.

- (4) Place two each Antenna AS-813/TRC-47 packaged as specified in *b(6)* above, within a nailed wooden box.
- (5) Arrange the boxes containing components of Radio Set AN/TRC-47 in the following sequence:

Radio Transmitter T-593(*)/
TRC-47,

Radio Receiver R-748(*)/TRC-
47 and

Telephone Signal Converter
CV-542/TRC-47.....Box 1 of 3

Electrical Cabinet Equipment
CY-2126/TRC-47 with
cables.....Box 2 of 3

Two each Antenna AS-813/
TRC-47.....Box 3 of 3

- (6) Strap shipping containers only on intertheater shipment.
- (7) Mark the shipping containers in accordance with the requirements of Standard MIL-STD-129.

APPENDIX
MAINTENANCE ALLOCATION CHART
FOR
RADIO SET AN/TRC-47

Section I. PREFACE

1. General

a. The maintenance allocation portion of the Technical Manual assigns maintenance functions and repair operations to be performed by the lowest appropriate maintenance echelon.

b. The lists in Section II are presented in columns titled as follows:

(1) PART OR COMPONENT. Only the nomenclature or standard item name is annotated in this column. Additional descriptive data is included only where clarification is necessary to identify the part. Components and parts comprising a major end item are listed alphabetically. Assemblies and sub-assemblies are in alphabetical sequence with their components listed alphabetically immediately below the assembly listing.

(2) RELATED OPERATION. This column indicates the various maintenance functions allocated to the echelon capable of performing the operation. These are defined as follows:

- (a) Service. To clean, to preserve, and to replenish fuel and lubricants.
- (b) Adjust. To regulate periodically to prevent malfunction.
- (c) Inspect. To verify serviceability and to detect incipient electrical or mechanical failure by scrutiny.
- (d) Test. To verify serviceability and to detect incipient electrical or mechanical failure by use of special equipment such as gages, meters, etc.
- (e) Replace. To substitute serviceable assemblies, sub-assemblies, and parts for unserviceable components.
- (f) Repair. To restore to a serviceable condition by replacing unserviceable parts or by any other action required utilizing tools, equipment and skills available, to include welding, grinding, riveting, straightening, adjusting, etc.
- (g) Align. To adjust two or more components of an electrical system so that their functions are properly synchronized.
- (h) Calibrate. To determine, check, or rectify the graduation of an instrument, weapon, or weapons system, or components of a weapons system.
- (i) Rebuild. To restore to a condition comparable to new by disassembling the item to determine the condition of each of its component parts and reassembling it using serviceable, rebuilt, or new assemblies, sub-assemblies, and parts.

(3) ECHELON ALLOCATED THE MAINTENANCE OPERATION. The symbol "X" placed in the appropriate column indicates the echelon responsible for performing that particular maintenance operation, but does not necessarily indicate that repair parts will be stocked at that level. Echelons higher than the echelon marked by "X" are authorized to perform the indicated operation.

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(4) REPAIR FACILITIES CODE. Code numbers are assigned to each individual tool equipment, test equipment and maintenance equipment referenced under "Inclosure To The Maintenance Allocation Chart". The grouping of codes in the Repair Facilities Code Column of the Maintenance Allocation Chart indicate the tool, test and maintenance equipment required to perform the maintenance operation.

(5) REMARKS. Entries in this column will be utilized when necessary to clarify any of the data cited in the preceeding columns.

(6) INCLOSURE TO THE MAINTENANCE ALLOCATION CHART.

(a) FACILITIES REQUIRED FOR MAINTENANCE OPERATIONS. Tools, test and maintenance equipment required to perform the maintenance functions are listed in this column and coded in the Repair Facilities Code column.

(b) ECHELON ALLOCATED THE FACILITY. The symbol "+" placed in the appropriate columns indicates the echelons allocated the facility.

2. Contents of the Maintenance Allocation Chart

The major items of RADIO SET AN/TRC-47 appear in the Maintenance Allocation Chart (Section II below) in the following sequence.

Radio Set AN/TRC-47
Antenna AS-813/TRC-47
Cabinet Electrical CY-2126/TRC-47
Converter CV-542A/TRC-47
Receiver, Radio R-748A/TRC-47
Transmitter, Radio T-593A/TRC-47

3. Comments or Suggestions

Any comments concerning omissions and discrepancies in this appendix will be prepared on DA Form 2028 and forwarded directly to Commanding Officer, U. S. Army Signal Equipment Support Agency, Fort Monmouth, New Jersey, Attn: SIGFM/ES-ML.

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MAINTENANCE ALLOCATION CHART, PART II, SECTION II

MAINTENANCE ALLOCATION CHART, PART II, SECTION II										
PART OR COMPONENT	RELATED OPERATION	Echelons Allocated the Maintenance Operation							REPAIR FACILITIES CODE	REFERENCE
		OPERATOR FIRST ECHOLON	ORGANIZATIONAL		FIELD			DEPOT FIFTH ECHOLON		
			TACTICAL	FIXED	THIRD ECHOLON	FOURTH ECHOLON				
RADIO SET AN/TRC-47	replace									
	repair		X							
	rebuild		X					X		
ANTENNA AS-813/TRC-47	replace									
	repair		X							
COUNTERPOISE	replace		X							
REFLECTOR	replace		X							
SUPPORT ANTENNA	replace		X							
GASKET	replace		X							
INSULATOR, STAND-OFF	replace				X					
ANTENNA ELEMENT	replace				X					
CONNECTOR	replace		X			X				
CABINET, ELECTRICAL CV-2126/TRC-47										
	replace		X							
	rebuild								X	
CABLE ASSEMBLIES	replace		X							
	repair					X				
CONVERTER CV-542/TRC-47										
	replace		X							
	repair		X							
	rebuild							X		
	adjust					X				6
	service	X								
	inspect	X								
	test		X						1,2,3	Testing of tubes, voltage and resistance measurements may be performed.
	test					X			1,2,4,5,6,8,11,13	
	test							X	1,4,5,6,8,11,12,13	Final Test
	calibrate							X	1-6,8,9,12,13	

APPENDIX
MAINTENANCE ALLOCATION CHART, PART II, SECTION II

PART OR COMPONENT	RELATED OPERATION	ECHELON ALLOCATED THE MAINTENANCE OPERATION								REPAIR FACILITIES CODE	REFERENCE
		OPERATOR FIRST ECHELON	ORGANIZATIONAL			FIELD			DEPOT FIFTH ECHELON		
			SECOND ECHELON	TACTICAL	FIXED	THIRD ECHELON	FOURTH ECHELON				
AN/TRC-47 (continued)											
CABLE ASSEMBLY	replace		X								
CAP. ELECTRICAL	repair										
	replace			X				X			
CAPACITOR	replace										
CONNECTOR	replace							X			
ELECTRON TUBE	replace							X			
	inspect			X							
	test			X							
FUSE	replace			X						2.12	
GENERATOR, RINGING	replace							X			
JACK, TIP:	replace							X			
KNOB	replace							X			
LAMPHOLDER	replace			X							
LIGHT, INDICATOR	replace							X			
POST, BINDING	replace			X							
CONNECTOR	replace										
RELAY ARMATURE	replace							X			
RESISTOR	replace							X			
RESONATOR	replace							X			
SEMI-CONDUCTOR DIODE	replace							X			
SHIELD	replace							X			
SOCKETS	replace			X							
SWITCH, ROTARY	replace							X			
SWITCH, TOGGLE	replace							X			
TRANSFORMER	replace			X							
RECEIVER, RADIO R-749A/TRC-47								X			
	replace										
	repair			X							
				X							
	rebuild										
	service									X	
	inspect			X							
	test			X							
	test										
	test							X			
	align									X	
CABLE ASSEMBLIES	replace			X				X			
	repair										
CAP. ELECTRICAL	replace			X				X			

INDEX MAINTENANCE ALLOCATION CHART, PART II, SECTION II

PART OR COMPONENT	RELATED OPERATION	ECHELON ALLOCATED THE MAINTENANCE OPERATION								REPAIR FACILITIES CODE	REFERENCE
		OPERATOR FIRST ECHELON	ORGANIZATIONAL		FIELD			DEPOT			
			TACTICAL	FIXED	THIRD ECHELON	FOURTH ECHELON	FIFTH ECHELON				
AN/TRC-47 (continued)											
CAPACITOR	replace					X					
CRYSTAL	replace		X								
COIL, RF	replace					X					
CONNECTOR	replace					X					
ELECTRON TUBE	replace		X								
	inspect		X								
	test		X							2, 3	
FUSE	replace		X								
FUSEHOLDER	replace					X					
JACK, TIP	replace					X					
KNOB	replace		X								
LAMP, INCANDESCENT	replace		X								
LIGHT, INDICATOR	replace					X					
LOUDSPEAKER	replace					X					
REACTOR	replace					X					
RELAY	replace					X					
RESISTOR	replace					X					
SHIELD	replace		X								
SOCKET	replace					X					
SWITCH	replace					X					
TRANSFORMER	replace					X					
TRANSMITTER, RADIO T-593A/TRC-47											
	replace		X								
	repair		X								
	rebuild								X		
	adjust		X							10, 13	
	service	X									
	inspect	X									
	test		X							1, 2, 3	Testing of tubes, voltage and resistance measurements may be performed.
	test					X				1, 2, 4, 5, 6, 7, 8, 9 10, 11, 13	
	test								X	1 and 4 thru 13	Final Test
	align								X	1, 2, 4 thru 13	

APPENDIX MAINTENANCE ALLOCATION CHART, PART II, SECTION II

PART OR COMPONENT	RELATED OPERATION	Echelons Allocated the Maintenance Operation							REPAIR FACILITIES CODE	REFERENCE
		OPERATOR FIRST ECHELON	ORGANIZATIONAL SECOND ECHELON TACTICAL	FIXED ECHELON	THIRD ECHELON	FIELD FOURTH ECHELON	DEPOT FIFTH ECHELON			
AN/TRC-47 (continued)	replace		X							
CABLE ASSEMBLY	repair									
CAPACITOR	replace					X				
COIL	replace					X				
CONNECTOR	replace					X				
CRYSTAL	replace		X							
ELECTRON TUBE	replace		X							
	inspect		X							
	test		X							
FUSE	replace		X						2.5	
FUSEHOLDER	replace					X				
JACK	replace					X				
KNOB	replace		X							
LAMP, INCANDESCENT	replace		X							
LIGHT, INDICATOR	replace					X				
METER	replace					X				
REACTOR	replace					X				
RECTIFIER	replace					X				
RELAY	replace					X				
RESISTOR	replace					X				
SCREW	replace					X				
SHIELD	replace		X							
SOCKET	replace					X				
SWITCH	replace					X				
TRANSFORMER	replace					X				

APPENDIX

INCLOSURE TO THE
MAINTENANCE ALLOCATION CHART, PART II, SECTION II

FACILITIES REQUIRED FOR MAINTENANCE OPERATIONS	OPERATOR	ECHELON ALLOCATED THE FACILITY							REPAIR FACILITIES CODE	REFERENCE
		ORGANIZATIONAL		FIELD			DEPOT FIFTH ECHELON			
		SECOND ECHELON	THIRD ECHELON	FOURTH ECHELON						
					TACTICAL	FIXED				
AN/TRC-47 (continued)										
MULTIMETER ME-77/U		+		+		+			1	
TUBE TESTER TV-7/U		+		+					2	
TOOL EQUIPMENT TE-41		+							3	
AUDIO OSCILLATOR TS-382/U				+		+		+	4	
ANALYZER SPECTRUM TS-723/U				+		+		+	5	
VOLTMETER METER ME-30A/U				+		+		+	6	
SIGNAL GENERATOR TS-497/URR				+		+		+	7	
ELECTRONIC MULTIMETER TS-505/U				+		+		+	8	
FREQUENCY METER AN/URM-32 with POWER SUPPLY PP-1243/U				+		+		+	9	
RADIO FREQUENCY WATTMETER AN/URM-43				+		+		+	10	
TEST SET SIGNAL GENERATOR AN/USM-65()				+		+		+	11	
TUBE TESTER TV-2/U								+	12	
TOOL EQUIPMENT TE-113				+		+		+	13	

By Order of *Wilber M. Brucker*, Secretary of the Army:

MAXWELL D. TAYLOR
General, United States Army,
Chief of Staff.

Official:

HERBERT M. JONES,
Major General, United States Army,
The Adjutant General.

Distribution:

Active Army:

ASA (2)
CNGB (1)
Technical Stf, DA (1) except CSigO (30)
Technical Stf Bd (1)
USA Arty Bd (1)
USA Armor Bd (1)
USA Inf Bd (1)
USA Air Def Bd (1)
USA Abn & Elct Bd (1)
USA Avn Bd (1)
USA Armor Bd Test Sec (1)
USA Air Def Bd Test Sec (1)
USA Arctic Test Bd (1)
USCONARC (5)
US ARADCOM (2)
US ARADCOM Rgn (2)
OS Maj Comd (5)
Log Comd (5)
MDW (1)
Armies (5)
Corps (2)
Div (2)
USATC (2)
Ft & Camps (2)
Svc Colleges (5)
Br Svc Sch (5) except USASCS (25)
Gen Depots (2) except Atlanta Gen Depot
(None)
Sig Sec, Gen Depots (10)
Sig Depots (17)
Fld Comd, AFSWP (5)
Engr Maint Cen (1)
Army Pictorial Cen (2)
WRAMC (1)
AFIP (1)

AMS (1)
Port of Emb (OS) (2)
Trans Terminal Comd (2)
Army Terminals (2)
OS Sup Agcy (2)
USA Sig Pub Agcy (8)
USA Sig Engr Agcy (1)
USA Com Agcy (2)
TASSA (13)
Mid-Western Rgn Ofc (TASSA) (1)
USA Sig Eqp Spt Agcy (2)
USA White Sands Sig Agcy (13)
Yuma Test Sta (2)
USA Elct PG (1)
Sig Fld Maint Shops (3)
Sig Lab (5)
Mil List (1)
US Army Corps (Res) (1)
Sectors, USA Corps (Res) (1)
JBUSMC (2)
Units org under fol TOE:
11-7 (2)
11-16 (2)
11-57 (2)
11-127 (2)
11-128 (2)
11-500 (AA-AE) (2)
11-557 (2)
11-587 (2)
11-592 (2)
11-597 (2)
44-145 (2)
44-147 (2)
44-445 (2)
44-447 (2)

NG: State AG (6); units—same as Active Army except allowance is one copy to each unit.

USAR: None.

For explanation of abbreviations used, see AR 320-50.

